

N+1 Planning Guide: Wireless networks, storage and security are among the hot technologies at NetWorld+Interop next week. See our guide. PAGE 35.

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September 2, 2002 ■ Volume 19, Number 35

#### **Novell vet** eyes Web services challenge

**BY DENI CONNOR AND JOHN FONTANA** 

DRAPER, UTAH - Novell cofounder Craig Burton has a long memory when it comes to network issues — and he sees the problem of getting multivendor Web service applications to work together as one that can be solved with a decades-old answer.

Burton, who is credited with creating file server technology and metadirectories, has founded a new company called Janus-Logix. It's focus is on building a gateway called the JanusLogix XML Environment (JLXE) to solve Web protocol and platform incompatibilities. The technology known as redirection is key to Burton's JLXE plan. Novell used the technique in NetWare as early as 1981 to implement its file server technology. In a network, if a request for a file can be satisfied with a response from the user's local disk, it is redirected there; if the request is for a file or application on the network, the network disk answers it.

Ultimately, JLXE is designed to provide a networklike infrastructure for applications that See Burton, page 16

# nat has BY JENNIFER MEARS, DENI CONNOR AND MICHAEL MARTIN

■ SEPTEMBER 11: ONE YEAR LATER

the year since the terrorist attacks, network executives have pragmatically revisited their disaster-recovery plans and core network technologies, haunted by visions of last Sept. 11.

"I don't think anybody viewed the world prior to 9/11 as we do now," says Denny Groh, acting associate commissioner for service delivery at the General Services Administration, which delivers IT and telecom products and services to federal agencies. "No one thought that two buildings could bring that kind of chaos economically, or technologically, to our country. We found out differently."

> "Since Sept. 11 there is more of a focus on preparation," says Larry Godec, ClO at First American Title in Santa Ana, Calif. "There's more a sense of things can happen. And there is more awareness about the importance of business resumption and disaster recovery."

> > turning the trend toward consolidation on its head by looking for

See 9/11, page 12

Barry Grant, CTO for Municipal **Credit Union, which serves** firefighters, police officers and healthcare workers in New York, has revamped his organization's disasterrecovery system in the wake of last September's attacks. Network executives have begun His story Is on page 12.

#### Car makers rev up new e-commerce initiatives

**■ BY ELLEN MESSMER** 

DETROIT — When it comes to e-commerce, the Big Three U.S. automakers see bumps aplenty in the coming months.

For starters, Ford told the audience at the annual AutoTech conference last week that it is tearing out its decade-old Ford Supplier Network, the proprietary client/ server application that Ford trading partners have used for procurement and finance purposes. The automaker will convert its global operations and trading partners to a new Web-based application Ford calls eVerest.

Based on the Oracle 11i e-commerce application suite, eVerest will require Ford and its suppliers — an estimated 100,000 users in 25 countries speaking 12 languages - to go through an extensive training and registration process, along with maintaining old and new e-commerce applications during the transition.

For Ford and its suppliers, this will be a year of somewhat painful transition, says Sue Kobet, Ford's director of eVerest Global Purchasing eBusiness

"The eVerest Supplier Portal will be used for manufacturing,

See AutoTech, page 16

900

We tested seven new tools designed to detect denial-of-service attacks. Which one is right for your network?

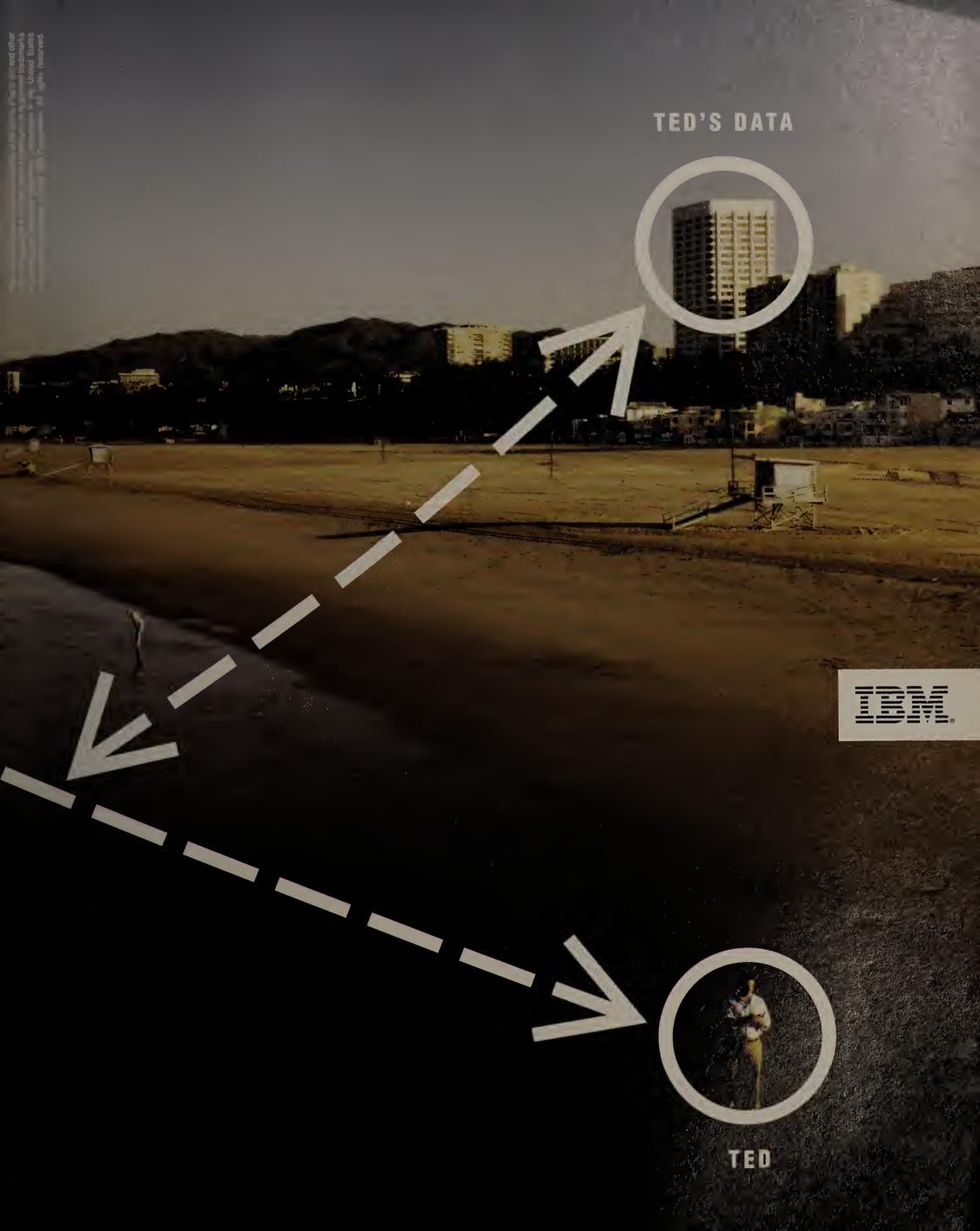
Check out our detailed analysis of each product on Page 41.

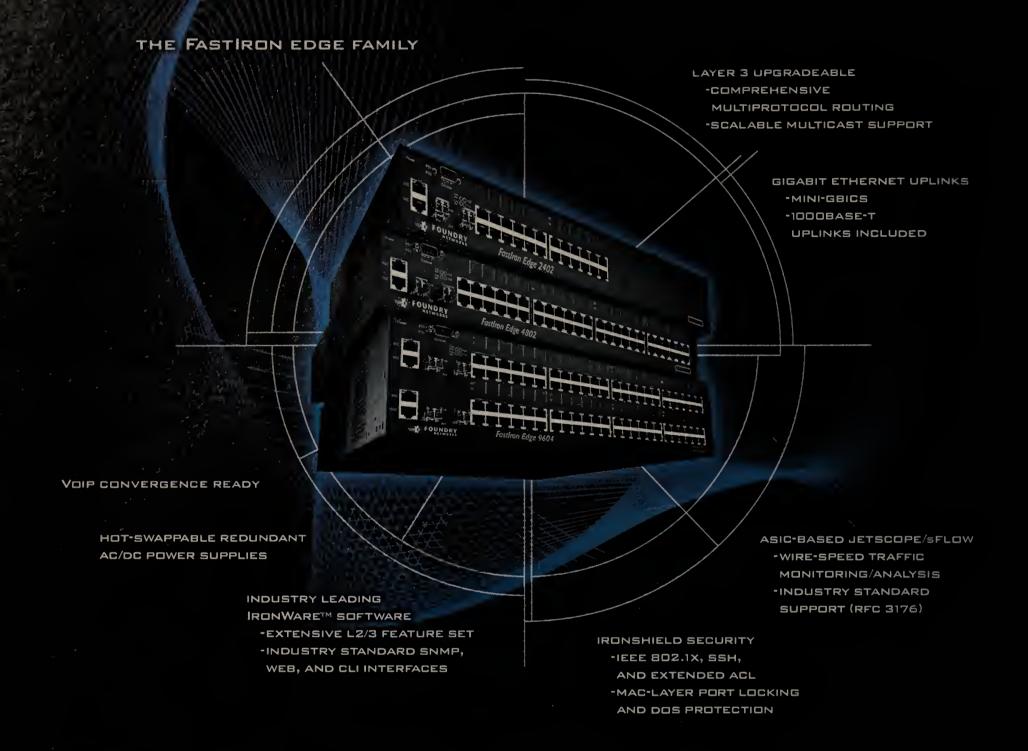
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How has your approach to networking changed since last fall? DocFinder: 1843

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#### Fighting back against denial-of-service attacks We tested the new breed of specialized anti-DoS tools and found that they successfully detected attacks about 95% of the time. Page 41.

# **NetworkWorld Fusion**

#### **Columnists**

#### The Multimedia Exchange

Goodbye, Betamax

Multimedia Editor Jason Meserve says Sony is ending its production of Betamax machines after 27 years. Did you know it still made them?

DocFinder: 2043

#### **Help Desk**

Connecting to servers in a mixed network Columnist Ron Nutter helps a reader who wants to use a Novell server to log on to a Windows 2000 server.

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Beating the drum

Net.Worker Managing Editor Toni Kistner examines three groups vying to fulfill telework's promise.

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#### View from The Edge

VPN snowball

The Edge Managing Editor Jim Duffy looks at how IP service revenue is gaining steam.

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#### The patches just keep coming

■ A couple of weeks after admitting to a flaw in the cryptography software of its operating system, Microsoft last week said another security flaw involving digital certificates exists in the operating system. A few weeks ago the problem was in verification of digital certificates used with Secure Sockets Layer to protect communication over the Internet using the Internet Explorer browser.

The new flaw, deemed critical by Microsoft, lets hackers delete digital certificates used to encrypt data in many programs, including e-mail. Just like the SSL flaw, the new vulnerability is found in Windows NT, 98, 98 Second Edition, ME, 2000 and XP. The vulnerabilities are just two in a string of security flaws that have been discovered in the past month.

#### **Call it Web laundry**

■ The Web was meant for this. IBM and USA Technologies are developing a system called eSuds that would let college students swipe a credit card or punch a code into their cell phones to pay for washing or drying their clothes. According to a Reuters story, the souped-up washers and dryers also would let students check a Web site for empty machines. From the comfort of their desktop or laptop, students could add soap and fabric softener that is dispensed by the washing machine. When the wash is done, the students could get an e-mail telling them to come and get it. IBM and USA Technologies said they are connecting 9,000 washing machines and dryers at U.S. colleges and universities to the Web in an effort to make doing laundry at school less of a hassle. IBM will host the eSuds transaction data and Web sites, and integrate the technology that handles inventory, payment authorization and reports. USA Technologies will provide the cashless technology, which IBM developed.

#### Security group pumps up membership

■ The Liberty Alliance Project last week added 30 members to its effort to create a standard for online authentication. The infusion of companies and organizations adds first-time perspectives from the healthcare and media industries, and from the consortium developing the next-generation Internet. The new members were added a little more than a month after the alliance released its 1.0 specification, which outlines a single sign-on mechanism for e-commerce and Web services. The specification would let users authenticate at one network access point and use that identity to traverse other sites. This so-called federated identity management is a key sticking point in developing secure e-commerce and Web services for business-to-consumer and business-to-business interaction. Sun started the alliance a year ago to counter Microsoft's efforts to create a similar authentication mechanism with its Passport service. New members include Baltimore Technologies, Bridgewater Systems, ePresence, Financial Services Technology Consortium, Healthcare Financial Management Association, Internet2, Newspaper Association of America, Oblix, Quadrasis

#### WorldCom execs face long arm of the law

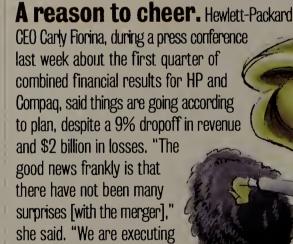
■ The muck keeps getting deeper around the WorldCom situation, as a grand jury indicted its former CFO on securities fraud and other charges after an apparent breakdown in plea negotiations. Scott Sullivan is accused of overseeing a scheme to conceal \$3.8 billion in company expenses. The indictment, unsealed in federal court in Manhattan, also names Buford Yates, WorldCom's former director of general accounting, along with other accounting executives, Betty Vinson and Troy Normand, as unindicted co-conspirators. Sullivan allegedly instructed the executives to hide WorldCom's increasing expenses by improperly shifting costs from operating to capital accounts.

The indictment alleges that Sullivan, Yates and their co-conspirators schemed to artificially inflate WorldCom's reported earnings and knowingly violated generally accepted accounting principles. Five of the indictment's seven counts concern WorldCom's quarterly Securities and Exchange Commission filings for all of 2001 and the first quarter of 2002. According to published reports, prosecutors were seeking plea deals with Sullivan and others in hopes of building a case against former CEO Bernard Ebbers. Ebbers' lawyers have said he had no knowledge of the accounting decisions in question.

#### **Caldera thinks Unix**

■ Two years after buying the Unix software and services divisions of the former Santa Cruz Operation, Linux and Unix vendor Caldera last week said it would be changing its name to The SCO Group and re-establishing its Unix work. The move is being made in part to take advantage of the strong brand recognition still associated with the old SCO nameplate. After the acquisition of the two SCO business units in late 2000, Caldera fell down in the Linux and Unix arenas. "Caldera was always known as a Linux company; The SCO Group came from the Unix camp," says Darl McBride, CEO of The SCO Group. "The pendulum swung too far on the Linux side. We're just trying to get a happy medium."

#### **TheGoodTheBadTheUgly**



in a workman-like and disciplined way." (See story, page 10, for more details.)

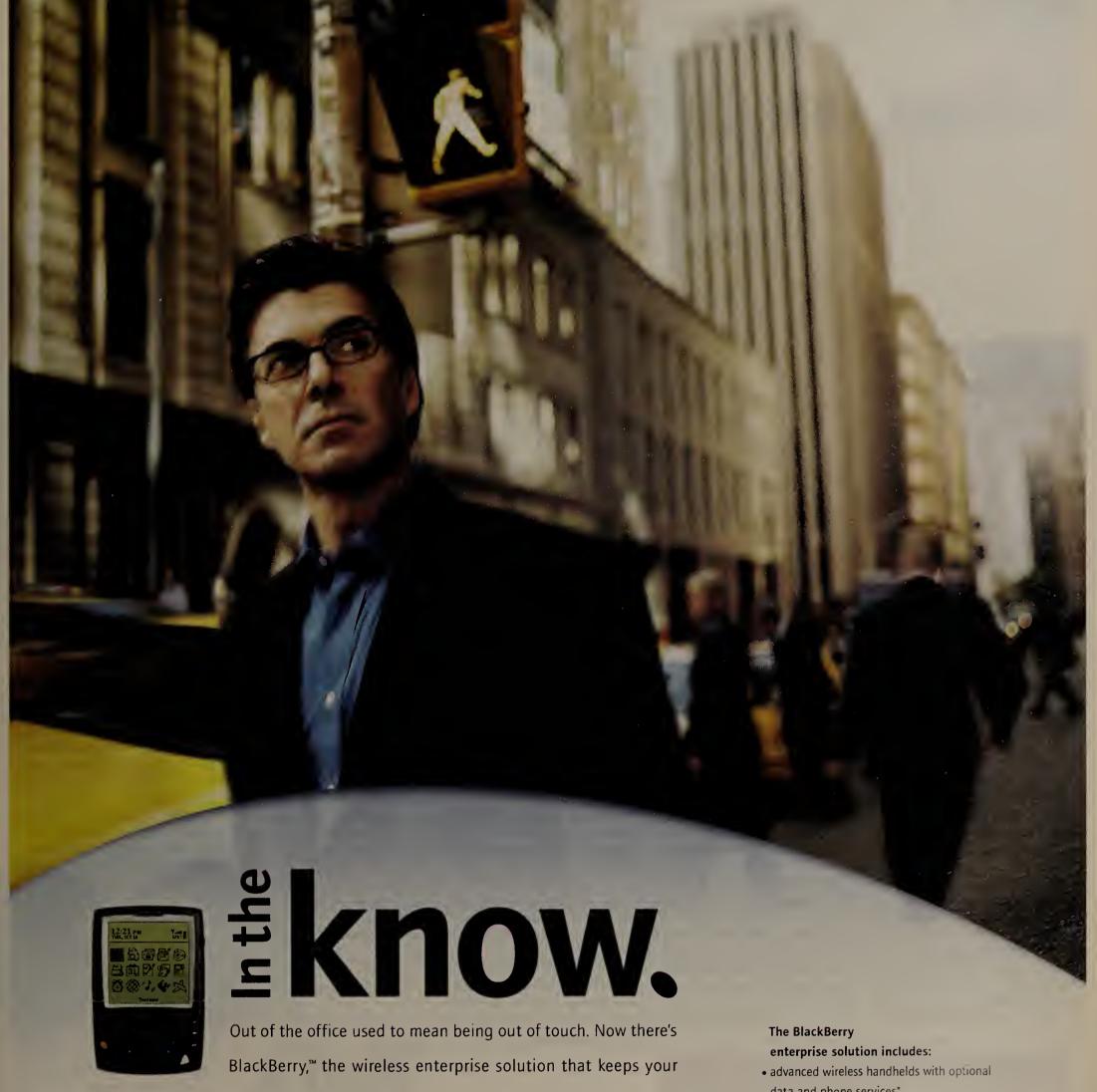
Nortel shrinking again. The

network equipment company warned last week that its third-quarter revenue will fall by as much as 10% from the \$2.77 billion it generated in the second quarter because of weak demand by U.S. carriers. Just last month, Nortel said revenue would remain flat. The upshot for Nortel employees? Seven thousand more will be laid off by the end of September, reducing the company's total by a sixth, down to 35,000 employees.



**IPO madness.** Another week, another appearance by WorldCom in The Good, The Bad, The Ugly. Salomon Smith Barney last week said it allocated nearly 1 million shares for hot IPOs to former WorldCom CEO Bernie Ebbers at the same time the carrier was doing millions of dollars in investment banking with Salomon. (Salomon also allocated shares for other WorldCom and non-WorldCom telecom execs.)





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# Infonet, Genuity push VPN service quality

#### **BY TIM GREENE**

Users demanding quality of service over their managed IP VPNs soon will have two more service options to consider from Infonet and Genuity.

The two companies later this month will separately introduce class-of-service options to their network-based IP VPN services that can be attractive to users because they lift the burden of installation and management of the WAN from network executives. Class-of-service options enable prioritization of traffic so delay-sensitive traffic gets through congested areas first.

Infonet and Genuity both serve customers internationally, with Genuity having a stronger U.S. network presence and Infonet stronger in other countries. Other

## Managed VPN options

Some providers offer VPNs based on MPLS while others add encryption using IPSec.

Company	MPLS	<b>IPSec</b>	Both
AT&T			X
Equant	X		
Genuity		X	
Infonet			Х
WorldCom			X

providers of IP VPNs, such as AT&T, Broadwing, Equant and Savvis Communications, offer classes of service using a variety of technologies, says Steve Harris, an analyst with IDC. For some

customers, these classes of service are critical.

"If you want to run voice or video over your network, you want classes of service," he says, because that traffic cannot tolerate delay and jitter.

How many classes of service a company needs depends on its size. Only the largest businesses need more than two, Harris says. "It's too cumbersome. With smaller IT staffs, most of the companies I'm talking to barely have time to check their firewall logs," he says. The largest companies with healthy staffs with time to analyze their traffic flows can benefit from the various prices available for the service classes, he says.

#### **Infonet services**

Infonet next week is introducing IP VPN Secure, which is built

on the company's existing Multiprotocol Label Switching (MPLS)based VPN service that runs over a network of Cisco switches and routers. The service also includes customer-site routers that Infonet manages. MPLS services have been popular with users because they let existing frame relay or ATM customers move from a point-to-point network architecture to a fully meshed architecture without the added costs. Traditionally, users were required to buy dedicated links to set up a meshed network, but MPLS lets users establish connectionless IP networks over the same frame

infrastructure.
Infonet offers four classes of service called, from top to bottom, IP/RealTime, IP/Interactive, IP/LAN2LAN and IP/Access. These classes are established by marking packets using Differentiated Services (Diff-Serv) technology. Diff-Serv is an Internet Engineering Task Force-proposed standard that defines how to establish various service levels over a net.

IP/RealTime is meant for voice and video traffic; IP/Interactive is for demanding, critical applications such as CRM and enterprise resource planning; IP/LAN2LAN is for less-delay-sensitive applications; and IP/Access is for file transfers, e-mail, Web browsing and other noncritical traffic.

These four classes of service are offered in six packages that have varying mixes of service qualities. One package offers performance and price on a par with frame relay, two are less expensive, and three are more expensive but

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The service is available through 67 points of presence in the U.S. and 77 POPs in 52 other countries. The company would not reveal pricing.

Also by year-end, Infonet will offer a managed voice service over the MPLS VPN network and early next year will expand that to include a managed multimedia service. Customers could run voice and video over the network today but would have to manage the voice and video themselves.

Meanwhile, Genuity later this month will announce four service classes for its Internet Advantage Internet Access service. Until now, the provider offered only two classes — one that supports voice and video, and one for all other types of traffic. The company is adding two intermediate service classes, one for demanding data traffic and one for applications on which customers set business value but that are not as demanding.

Providers rely on different technologies for classes of services. Infonet and Genuity use Diff-Serv to mark packets for priority but carry those packets over different backbones. Infonet uses a core network based on MPLS, and Genuity uses one based on IP over SONET.

Andrew Ward, Genuity's product development manager, says running IP directly on SONET gives Genuity sufficient control over the traffic to impose service qualities.

Infonet and other carriers such as AT&T use MPLS routers connected by ATM trunks to link the Layer 3 IP customer traffic to the Layer 2.

AT&T uses a similar arrangement for its IP-enabled frame relay and contends this architecture provides Layer 2 security for the IP traffic, according to Tim Halpin, AT&T's national frame relay product manager.

Others, including Ward, say the only way to ensure security is to use authentication and encryption at either end of each connection. The company plans to announce price and availability at the end of the month.



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## Opsware automates network mgmt.

#### **BY DENISE DUBIE**

SUNNYVALE, CALIE — Opsware this week will introduce software that could make it easier for companies to configure networks and servers across data centers.

The company, which changed its name from Loudcloud earlier this year, says its Multimaster Service Automation Module (SAM) can save companies a lot of time setting up new data centers and recovering downed ones. For example, it says the software can slash the time it takes to upgrade 60 servers' operating systems from four weeks to just three days.

The software is an add-on to the company's System 3 IT automation platform. It uses rules and policies running on that platform

and its agents to collect information about server, network and application configurations. That information can be used to configure and upgrade systems in new or existing data centers.

"The Multimaster SAM is an absolute must for us in terms of maintaining our facilities across multiple geographical locations," says Steve Lapekas, global services executive for Web hosting at Electronic Data Systems (EDS). "Opsware is automating IT tasks that normally take a lot of people power. It's bringing in scale and standards to large data centers, which ups efficiency and quality."

EDS bought Loudcloud's managed services division in June for \$63.5 million and has since signed a deal with Opsware for

\$52 million to license its software over the next three years.

While Opsware gained operational experience using its software through Loudcloud's service offerings, the company will compete as an independent software vendor from companies such as CenterRun and Jareva.

This is a software category that has a chance to fare well, even during a tight economy, says Bill Mattorelli, a vice president at consulting firm Hurwitz Group. Customers looking to consolidate data centers and Web sites might find IT automation software attractive, he says.

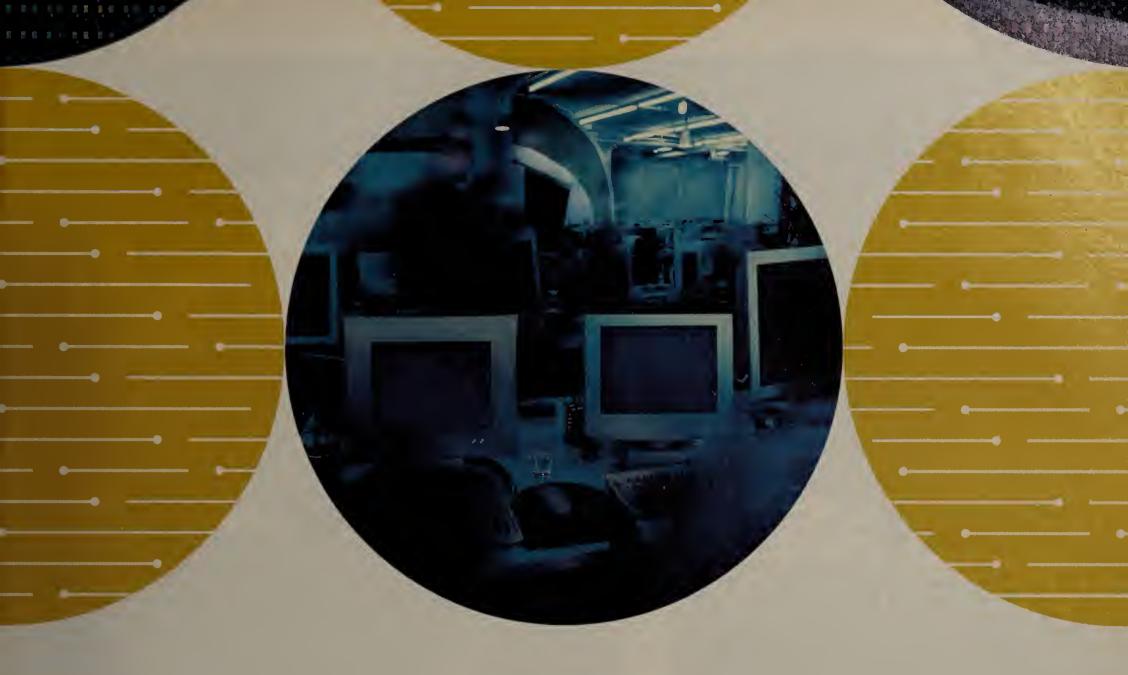
"Sales are slow for all software now, but this is the kind of software that can make a significant impact on operational expenses for large enterprises," he says.

In addition to the Multimaster SAM, Opsware offers modules that handle infrastructure provisioning, application distribution, server security management along with auditing and tracking. The company offers 67 other modules that are product specific, such as for BEA Systems' WebLogic application servers and Oracle databases.

System 3 costs \$250,000 to \$3 million, depending on the number of servers and data centers, and the number of modules being used.

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# Cisco, Symbol upgrade wireless wares

#### BY JOHN COX

Cisco and Symbol Technologies, two of the leading makers of wireless LAN products, separately will roll out equipment this week that takes the technology to a new level.

Cisco will begin shipping 54M bit/sec products based on the 802.11a standard and its own 5-GHz Radiata chipset. Symbol will introduce Level 3 and 4 switching features into a box designed to give network managers more control over wireless LAN packets.

Some Cisco rivals began shipping 802.11a-based wireless LAN access points and network interface cards (NIC) based on the Atheros chipset about 10 months ago. Given Cisco's standing as the dominant network equipment vendor, its entry into the 802.11a market is expected to boost sales of the technology.

Cisco's Aironet wireless LAN business is consistently ranked as the No. 1 or No. 2 brand in the enterprise market for 802.11b wireless LANs, which run at 11M bit/sec.

The new 802.11a Aironet products includes a module that plugs into the second slot of the existing Aironet 1200 access point, creating a "dual-band" access point that can handle 802.11b and 802.11a users. Cisco also is releas-

ing a CardBus NIC, which will let any 32-bit client device with a slot for the credit card-sized NIC make a wireless net connection.

The Aironet 1200, sold as an 802.11b access point, lists for about \$1,000 and costs about \$1,350 when sold with an 802.11a interface. Fitted with one 802.11a and one 802.11b card, the price is \$1,500. The CardBus NIC costs \$230.

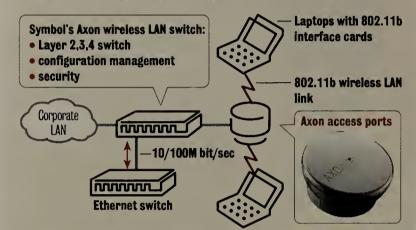
#### Switched on

Symbol's switched wireless Axon product will have a chance to shine from the start, because it is being deployed as part of the NetWorld+Interop show network next week in Atlanta. In effect, Symbol has streamlined its access point product, reducing it to what executives call a wireless access port, which is scarcely more than a compact 802.11b (or in future 802.11a) radio (see graphic).

End users with a wireless LAN card fitted into a laptop or handheld device connect via radio to the Axon access port, which is linked via wire to a standard Ethernet switch. A separate Axon device, called the wireless switch, plugs into the Ethernet switch. The wireless switch has software to support Level 2,3 and 4 switching features and apply these to the wireless packets, which are

#### **Switched wireless LANs**

Symbol's simplified wireless access ports link to a standard Ethernet switch. A separate Symbol wireless switch processes packets, applies security and class-of-service policies, manages and configures the access ports.



then passed back to the wired corporate LAN.

The result: Among other things, network managers can, allocate bandwidth, create classes of service and set security features, based on groups of users or on the type of application.

Technically, Symbol executives say, the radio connection between the client device and the Axon access port remains a shared medium: In practice, all users connecting to a given access port have to split up either about 5M to 7M bit/sec for 802.11b or 17M to 22M bit/sec for 802.11a.

The 802.11b access port has a list price of \$250. The wireless switch's price varies with the number of ports: \$2,900 for six ports, \$3,720 for 12, and \$5,370 for 24. Symbol executives say companies will pay less overall for an Axon deployment because of the comparative low cost of the wire-

Other vendors have adopted a similar approach to wireless LANs. Proxim has an access point controller for centrally managing big wireless LAN deployments. Bluesocket has a line of what it terms wireless gateways that offer management and security features, including class of service, for large numbers of wireless users.

#### More on the way

less access ports.

The Cisco and Symbol announcements are only the latest of what's expected to be a flurry of wireless LAN advances over the next few months.

Later this fall, network executives can expect to see so-called combo-cards, wireless client cards that can attach to an 802.11b or 802.11a wireless LAN. A key requirement will be software that will handle this sensing and connecting, with almost no effort needed by end users.

Also expected are wireless LAN roaming agreements and customer information systems that let mobile workers use whatever wireless service provider is nearest, while the back-end billing is coordinated through their "home" providers.

By year-end, products based on new 802.11a chipsets will start to roll out, giving network executives more choices and probably leading to lower prices.

Yet another wireless LAN option will emerge by year-end: the first implementations of the IEEE 802.11g specification, which will boost the data rate in the 2.4-GHz band, today used by 802.11b, up to 54M bit/sec.

Cisco is working with chip maker Intersil on a joint reference design for a wireless chip to support 802.11g and the others.

One drawback is that 802.11g, like 802.11b, has only three channels, whereas 802.11a supports eight, allowing far more users on each access point. Cisco plans to have an 802.11g module that can be plugged into the 1200 chassis.

Vendors haven't announced pricing for the 802.11g products.

Later this year or early next year, vendors might introduce some security improvements in the proposed IEEE 802.11i specification. The IEEE is expected to approve 802.11i late this year or in the first half of next year.

Stronger wired equivalent privacy encryption and other mediaaccess-control layer features of 802.11i, can be adopted by updating wireless LAN firmware. Other features, such as support for the powerful Advanced Encryption Standard, will require new co-processing hardware.

# 'New' HP posts mixed results

#### BY DENI CONNOR

PALO ALTO — Hewlett-Packard watchers were unfazed last week by the company's posting of a \$2 billion quarterly loss in what was its first financial report to include results from the recently acquired Compaq. Eyebrows were raised, however, by a slippage in revenue attributable in part to sluggish enterprise computing sales.

HP's loss was largely the result of nonrecurring merger-related charges. Without those charges, the company would have turned a profit of \$420 million for its fiscal third quarter, ended July 31, vs. a profit of \$320 million in the comparable quarter last year.

"The reported operating loss included what might be considered to be somewhat one-timish elements, including obsolescence charges for HP Netservers, which are earmarked for end of life," says Richard Shu, managing director for brokerage firm SG Cowen.

Analysts say the after-charges profit was actually a sign that HP might be starting to realize some of the

cost-cutting benefits it said would result from the merger during the takeover that lasted from last fall to this May. Operating expenses were down 10% year over year, and HP says it is on track to achieve cost savings of \$2.5 billion by the end of next year.

But analysts were discouraged by the drop in revenue from \$18.6 billion in last year's fiscal third quarter to \$16.5 billion in the most recent quarter. HP blames the decrease on the weak economy and cites particular weakness in its enterprise servers, storage and management software. Combined, HP and Compaq revenue fell 22% in these areas from a year ago to \$3.8 billion, from \$4.8 billion. Price pressure in the RISC and Intel server markets, and in storage, took its toll on HP's numbers, according to a research note issued by Steve Milunovich, a vice president at Merrill Lynch.

Gartner last week released a survey that showed overall server sales slipping, and HP and Compaq getting hit hard. HP's server revenue fell 21.3% and Compaq's fell 21.8% year over year, and the companies lost market share as well. IBM and Sun gained share. ■

#### **Corrections**

- The story "Progress at a price" (Aug. 26, page 48) said that Nortel Networks Split Multilink Trunking, operating on a Passport 8600 tested, was unable to communicate with the full range of devices tested. Nortel's Split MLT was never tested; the Passport 8600 supported the Spanning Tree Algorithm during the interoperability tests.
- In the story "Yipes cofounder giving metro Ethernet another whirl" (Aug. 26, page 8), the description of bandwidth increments available should have stated that bandwidth can be ordered in 1M bit/sec increments, ranging from 1M to 1G bit/sec.



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#### FIRSTHAND

#### **Credit union rethinks** disaster recovery

Mun cipal Credit Union is one of many organizations that has found it much easier to justify implementing an improved business-continuity program in the past year.

"We didn't have any trouble getting money after Sept. 11," says Barry Grant, CTO for the \$918 million outfit, which provides financial services to 300,000 of New York's firemen, police officers and healthcare workers.

Before Sept. 11, Municipal Credit Union relied on tapes to protect its business; Grant had planned to deploy a snapshot back-up system to take images of the system at scheduled times. But in the wake of the attacks, his plans changed dramatically.

"We were addressing what we thought were flaws in the plan before Sept. 11," Grant says. "The thought was that if it took a couple of days to recover, it wasn't that critical a situation — we could work offline."

After being forced out of its building, the credit union worked offline. Grant recovered the back-up tapes from the dust and debris that littered the company's headquarters, located across the street from Ground Zero. The company logged transactions on paper until Grant brought the company's network back online a week later.

Since then, Grant has connected two SAN Valley SL1000 IP-SAN bridges to Municipal Credit Union's HP StorageWorks EMA 12000 storage arrays, which replicate data in real time between storagearea networks in New York and New Jersey.

"Business continuity is now an integral part of our operations," Grant says. "When we are asked about bringing up new applications, part of it is:

9/11

telephony.

continued from page 1

Backing up business

well are revisiting their assumptions," he says. "People historically would attempt to identify the risk areas — fire, earthquake, power outage. Sept. 11 ingrained in people: 'Don't try to plan for a particular type of outage. Plan for the impact of the outage. It's a different mindset."

ways to spread out critical data, IT systems and employ-

ees. Other changes: Businesses that turned to videocon-

ferencing to reduce corporate travel after the attacks

voice over IP as being more resilient than traditional

At the same time, the country's major carriers have

been reassessing their networks and stretching to meet

Dave Purdy, director of business continuity at storage

vendor EMC, says his company has seen a change in the

"Even customers that thought they were doing things

way companies look at business continuity.

the changing demands of their corporate customers.

seem to have stuck with it; others have bought into

Rich Arenaro, corporate vice president and general manager of Windows and Unix systems at Commerzbank in New York City, agrees. Commerzbank, located in 2 World Financial Center, is across the street from where the towers stood. Commerzbank uses EMC's Symmetrix Remote Data Facility (SRDF) software to replicate data from one storage-area network in the city to another in Rve, N.Y., about 30 miles away. The company had completed the bulk of the project just prior to Sept. 11 and got most of its critical systems back online within four hours after the attacks.

Even so, Arenaro says since Sept. 11 there has been a

greater focus on ensuring not only that data will be protected but also that business will be able to continue when disaster strikes.

"Our strategy had been based on a false one-to-one ratio of technology, meaning if I buy a server here and one for Rye, I'm protected," Arenaro says. "The reality is when you are faced with that situation, having hardware really is the least of your worries. It's really having your data and your systems available and ready to use."

Enabling business to continue immediately was not the focus for law firm Harris Beach LLP, which had an office on the 85th floor of World Trade Center Tower 2. The firm lost six employees, its office and its files during the attacks (see story "Law firm revamps after attacks," page 13).

"As a law firm, if we suffer a cataclysmic disaster, we don't need to be up in an hour," says Alan Winchester, a technology partner at the firm. "People aren't ready to work in a day or two....The only thing you want to get going quickly is your e-mail and telephone [so people can stay connected]."

Harris Beach also went to work installing a system to scan all incoming documents and turn them into digital files it stores at local offices and at headquarters in Rochester, N.Y.The firm had considered a paperless system before the attacks, he says, but the project never got going because of the time and energy associated with scanning every document.

While each business must determine for itself what degree of business continuity and disaster recovery is necessary, some network executives say that getting the financial go-ahead to fund such projects has gotten much easier since Sept. 11. This despite an economy that IDC says has let IT spending this year sneak up just 3% to \$436 billion.





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"What Sept. 11 did was open the eyes of executives and make it easier for me to justify security perimeters and projects," First American Title's Godec says. Godec is overseeing a revamp of his company's network to support an enterprisewide IP-based application and a new redundant site in Dallas." It really made it easier to push a lot of the initiatives that were already on the table," he says.

#### A job for new technologies

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While disaster recovery and business continuity may have received the bulk of post-Sept. 11 attention, there are many creative initiatives under way at companies that have turned to technologies that were little used before the attacks.

At chemicals and materials company Grace in Columbia, Md., CEO Paul Norris clamped down on corporate travel following the attacks. As a result, employees who are spread out in offices in the U.S., South America, Asia and Europe were forced to make use of the comphone lines down because of a lightning strike with no way for parents to reach their children on the day of the attacks. With 3Com's VoIP system that was installed in February, the school has put phones in each classroom and has updated its disaster plan.

events in New York and Washington, D.C., it found its

"We now have a mass communications system where we can page all the phones simultaneously, as well as the outside horns and inside speakers," says Dustin Durbin, technology coordinator at the school. "We haven't had any issues since we installed the system, which runs over a managed network rather than over a bunch of analog cables in the ground."

Security is another hot topic, especially because the focus now is on geographically distributed network storage and data replication.

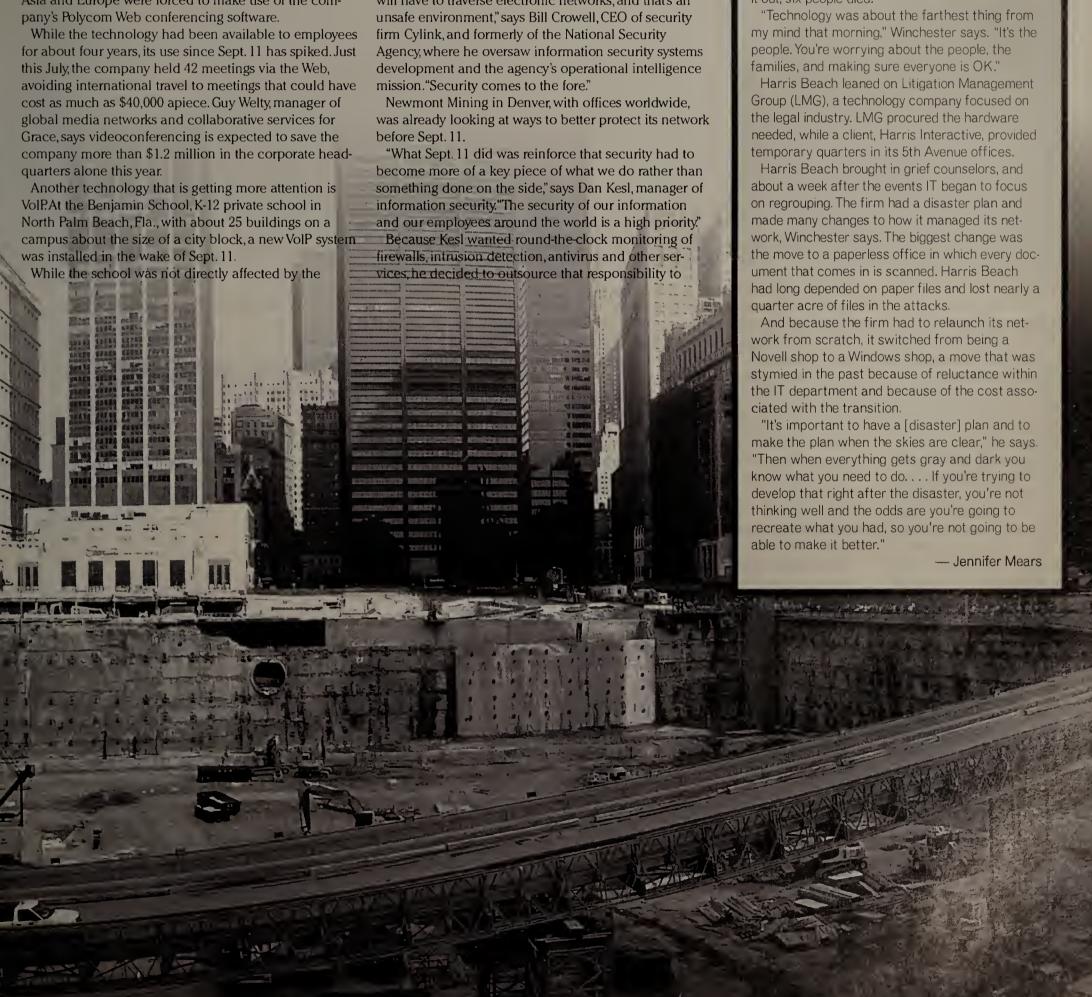
"People will be moving to online backup and mirroring over a broad geographic area. That means information will have to traverse electronic networks, and that's an



#### Law firm revamps after attacks

On the morning of Sept. 11, Alan Winchester, technology partner for the New York office of Harris Beach LLP, was preparing for trial. Winchester was in his Brooklyn apartment when he looked out over lower Manhattan and saw the planes hit. His law firm's offices, located on the 85th floor of Tower 2, were destroyed, and while most of the 100 or so staff made it out, six people died.





managed security service provider Guardent.

"To train and bring up internal staff would have been very time-consuming and very expensive," Kesl says. "To get the service levels we needed we had to go outside."

One more area that is getting increased attention since Sept. 11 is how to ensure communication within companies and between the public and private sectors in the event of disaster.

Technology firm Candle created the National Center for Crisis and Continuity Coordination in February to provide collaboration assistance to the private and public sectors during emergencies.

"We're not replacing the disaster-recovery firms," says Jim Montagnino, the center's general manager. "What we're involved in and what we're finding is, especially in the wake of 9/11, businesses are realizing they need ways of getting information from the police, fire departments and emergency personnel."

"And the public sector needs to know when businesses have closed down and evacuated," Montagnino says.

#### **Carriers** respond

As businesses modify their network strategies, carriers are seeing a change in customer demand. Cable & Wireless says it has seen demand for its IP VPN servicedouble since the end of last year; WorldCom reports seeing double-digit growth in demand for collocation and managed hosting in the past year, a trend it attributes to customers' heightened sense of security.

"The big change since 9/11 is customers are actually looking for redundancy," says Audrey Wells, senior manager of global VPN services at WorldCom. "We don't need to tell them why they need it."

At the same time, carriers have been reviewing their own network architectures. The hardest hit of all the carriers on Sept. 11 was Verizon, which had its central switching station next to the World Trade Center. Verizon has completed most of the repairs to its heavily damaged West Street central office and to lines that were cut in lower Manhattan, says Marlene Grant, executive director of network planning for Verizon

The carrier has installed more than 40 miles of new fiber downtown, and Grant says that voice and data service there has FIRSTHAND

#### Helping federal agencies regroup

Within an hour of the first plane striking on Sept. 11, the General Services Administration established a response team consisting of resources from multiple federal technology

organizations. Denny Groh, acting associate commissioner for service delivery at the GSA, led the effort, which was designed to help federal agencies within the World Trade Center and the Pentagon resume operations.

The GSA learned lots of lessons. For example, many of

the 600 cell phones it quickly shipped to emergency personnel were initially unusable because of damaged cell sites. Carriers sent in cellular sites on wheels that got those systems back into use. As for landline communications, workers had to get creative.

"Wires were actually strung out of 14-story buildings," Groh says. "Some of the photos they brought back were just amazing: 10 blocks of rubble with hanging wire that crossed what used to be streets to connect buildings so that they could communicate and actually start con-

ducting their 'normal' operations."

The team later turned to microwave systems, although they proved difficult to deploy with many building owners unreachable. "We

learned that you could do microwave shots from buildings through windows and get connectivity," Groh says.

New efforts include a land mobile radio system that will let first responders communicate regardless of what frequency they're using. Another initiative gives federal agen-

cies a menu of six options that will let them choose the type of network security they need at a price they can afford.

Importantly, Groh says agencies within the federal government have learned to work together better on technology and communications issues.

"You can have the best technology in the world, but if it's not provided to the people who need it when they need it, it's not going to do any good," he says.

- Jennifer Mears

returned to normal levels. But the phone giant still has some significant work ahead of it to get the network permanently restored. Verizon estimates it will not be completely finished rebuilding its network until 2004.

Three of the West Street switches that were damaged in the Sept. 11 attack are being replaced — Verizon already has replaced one of them — without disrupting customer service, Grant says.

Finally, Verizon is building more reliability and survivability into its network, and part of that effort involves reducing the number of circuit hops. For example, Grant says a circuit terminating in White Plains, N.Y., north of Manhattan, might typically be routed through a central office in the Bronx and two more central offices in upper Manhattan before reaching lower Manhattan.

"We're looking now at taking that circuit and making it maybe one, or at most, two hops," she says.

Up to 20% of the circuits that ran through the West Street central office were pass-through circuits, meaning they didn't need to run through the office, and Verizon wants to significantly lower that number in all its lower Manhattan central offices, Grant says.

Another improvement Verizon

is making is adding more SONET rings, which are designed to survive cuts, in lower Manhattan. Verizon is not only adding more rings to the company's backbone network but also is pushing them to customer premises wherever possible.

Other carriers, including WorldCom and C&W, say they were satisfied with how their network architectures performed. Both, however, say they underwent extensive reviews following the attacks to see where improvements could be made.

WorldCom has created an organization dedicated to business continuance and emergency response.

The carrier's hazardous materials team, which can be sent in to fix equipment when there are biological dangers, also is available nationwide and has been trained to deal with new threats, such as anthrax.

Another big focus among the carriers is an effort to ensure smooth partnering in the event of another disaster. On Sept. 11, the carriers helped each other by moving customers onto operating lines.

"A lot of carriers have come together because they realize that when an incident like that occurs we need to work closely together to get communication established. That way we can bring up our customers and get

some kind of service restored to them in a more timely manner," says Jim Weber, vice president of network operations at C&W.

Communication and diversity might be the key to how businesses, carriers and public agencies can steel themselves against network problems in the event of future disasters. The GSA's Groh says organizations need to understand that diversity means more than multiple service providers, it means having network support that ranges from landline to wireless.

"So if switching stations are taken out, or central office switches are taken out, business can be rerouted instantaneously and not just through hardwire assets but also through satellite, microwave and other ways. The thing is to ensure that whatever bad people do you have the ability to overcome it," Groh says.



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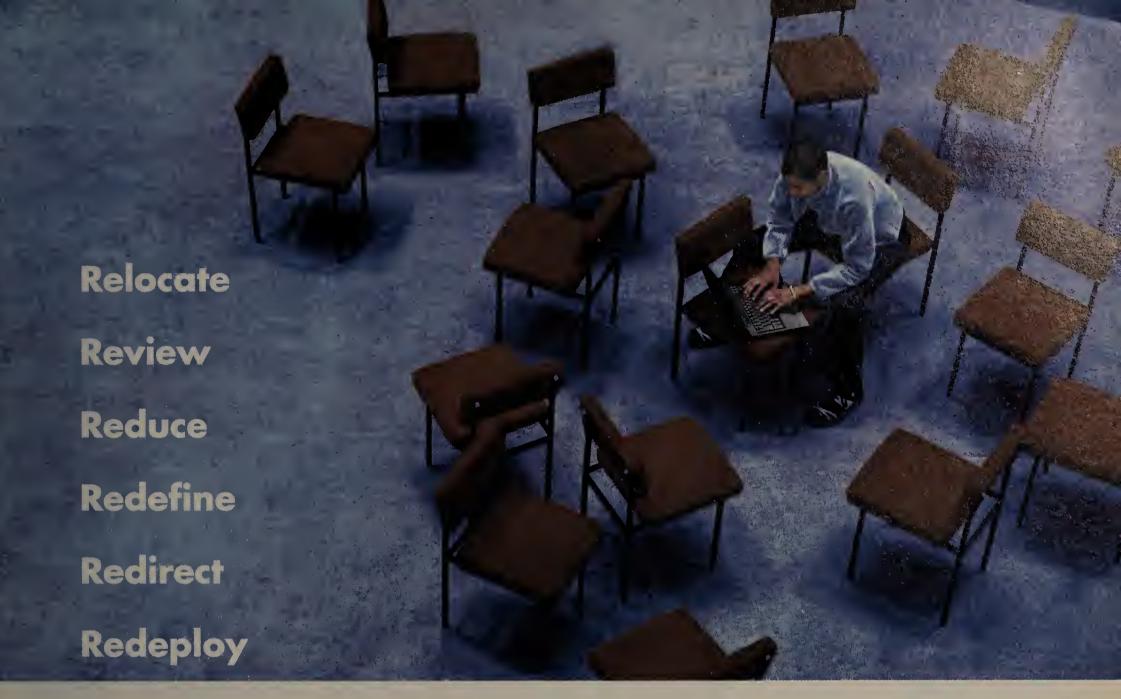
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#### AutoTech

continued from page 1

purchase orders and request for quotes. Most suppliers will find themselves in eVerest and Ford Supplier Network for at least another year," Kobet says. She adds that Ford is sending out notices now to the corporate security officers at Ford trading partners about the changes because it will involve new security procedures and controls.

The new commerce platform will still process electronic data interchange messages for purchasing, remittance and shipping as the auto industry has for decades. But the focus will be squarely on moving to EDI over IP, with a phase-out of bisynchronous EDI with suppliers. For the first time, Ford will encourage suppliers to start using XML as an optional alternative to EDI.

"We see XML as a mechanism for data integration," says Tim Thomasma, Ford's plant floor systems architect. Ford wanted to gain real-world XML experience with suppliers using eVerest, he adds.

At last week's AutoTech conference, representatives from DaimlerChrysler and General Motors also expressed keen interest in XML. The auto industry's trade association, AIAG, which often takes the lead on auto industry standards, says it hopes to get the Big Three to agree on XML technical elements.

According to Pat Snack, a GM executive working at AlAG on industry standards, AlAG favors the Open Application Group's Business Object Documents at this point for XML. "We're trying to get critical mass behind XML and the way we use it," she says. "With EDI, we ended up with the Big Three all doing something different, and we don't want to have that happen with XML."

#### **Trouble in VPN land**

Meanwhile, the Big Three are becoming frustrated over interoperability problems with the multivendor VPN gear used on the ANX, a huge privately run e-commerce network that is mainly for the automotive industry. As has been the case since the ANX was founded two years ago, the service is only provided by ISPs that

#### Taking a new road

A sampling of automakers' e-business plans:

#### DAIMLERCHRYSLER

- Phasing out bisynchronous EDI and leased lines to value-added networks in favor of secured IP data exchange with trading partners, primarily through VPNs.
- Plans to support collaborative CAD/CAM applications over ANX.

#### Ford

- Will require suppliers on the ANX to use a new Ford-subsidized IP Security service, dubbed Tunnelz, in an effort to avoid interoperability problems with multivendor VPNs.
- Phasing out decades-old Ford Supplier Network in favor of eVerest, its Web-based portal; offering XML as an EDI alternative.



- Will no longer use bisynchronous EDI with new suppliers and will phase out bisynchronous EDI connections for all GM suppliers by year-end in favor of IP-based EDI via the ANX or the Internet.
- Dissatisfied with ANX service availability and pricing, might establish its own secure VPN-based network with suppliers.

have met strict quality controls approved by technical staff of ANXeBusiness, a division of SAIC that bought the ANX from the AIAG a few years ago. Trading partners that want to use ANX, including those outside the auto industry such as Boeing, must use IP Security (IPSec)-based VPNs to encrypt data with other ANX trading partners.

**PROFILE: JANUSLOGIX** 

Headquarters: Draper, Utah

Founded: January 2001

Sean O'Gwin, COO.

private investments.

software.

JanusLogix.

Founders: Craig Burton,

Primary product: XML-

based protocol conversion

Financing: \$1 million plus

from The Canopy Group and

Fun fact: Burton co-founded

Novell, which produced many

of the engineers now at

CEO; Arthur Nevarez, CTO;

However, VPNs have been the sore spot for ANX because it has proven impossible to get different vendors' VPN gear to work together despite extensive IPSec equipment testing. Erik Naugle, CTO at ANXeBusiness, explains: "The standard has enough loopholes [that] you can be compliant with the specification but not be interoperable."

tions interact regardless of the workflow protocol

they use. Burton says his challenge will be to differentiate his product from transformation products that integrate diverse technologies from lona, Tibco

and WebMethods.

One issue JLXE is attacking is that Web services and XML, which are seen as the catalyst for interoperability between systems and applications, do not eliminate the semantic and schema differences between applications and services, says Jamie Lewis, CEO and research chair of Burton Group, a research

firm started by Burton (he sold the company in the mid-1990s).

"We've been talking about building another layer of the network, a data and application layer that needs routing and transformation capabilities," he says. "JanusLogix is trying to add an intelligence to the network, a data networking service, so you can connect applications not just physical nodes on the network."

Analysts say this data layer is analogous to the traditional network layer that routes network traffic.

JLXE, which is scheduled to be available

in the first half of next year, will cost \$2,600 per server.

Currently, 40% of the 1,300 ANX corporate customers use technology from Check Point Software, 25% use Cisco, 20% use Alcatel and 15% use products from a mix of other vendors.

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Fed up with VPN interoperability problems, Ford has gotten ANX to start offering a new VPN managed service called Tunnelz. The service is based on a single vendor's VPN equipment that Ford will require its trading partners to use on ANX.

Tunnelz will involve ANX staff installing a Nokia VPN appliance at the user's site and managing it remotely to establish VPN tunnels between ANX trading partners.

"We want to eliminate the variety of IPSec tunnels we have to deal with," says Dennis Kirchoff, Ford's ANX development leader. He adds that Ford and its 500 trading partners on ANX use it for volume batch EDI, CAD/CAM file sharing and mainframe access. Ford wants to establish service-level agreements for VPNs with suppliers, and the Tunnelz managed service is viewed as the way to do that.

Tunnelz will cost \$240 per year, per tunnel, a price Ford intends to keep low by subsidizing it. DaimlerChrysler also is considering using Tunnelz.

Some of the Big Three's suppliers say Tunnelz sounds like a good idea. "I'm interested in it," says Joseph Ciunciosa, programmer analyst with Gibraltar Steel, who says his firm has trouble getting the Cisco VPN/firewall to talk to Nokia's.

The experience with ANX has convinced Ford and Daimler-Chrysler that VPNs perform better when separated from the firewall function, although most ANX trading partners today use combined firewall VPNs.

"We're going to use the Nokia CryptoCluster," says Stanley Chan, WAN planning and project manager at DaimlerChrysler. "And we've separated the IPSec layer and the firewall layer to get better performance and better tolerance for problems that may happen."

Still, GM last week showed flagging enthusiasm for ANX, saying it was taking a wait-and-see attitude on Tunnelz.

One GM official said the company might even organize its own VPN-based network over the Internet with suppliers.

#### Burton

continued from page 1

integrate them on the protocol level

Network professionals say integration is needed in the Web services world, where multiple protocols with distinct semantics are being developed for the same service, such as workflow.

The gateway, targeted at small and midsize corporations, will map or redirect protocols for one application service to protocols designed for another service, allowing for the integration of network or Web services applications.

Burton, who is CEO of JanusLogix, has been consulting with companies such as Novell for the last four years. In those years he has found that the trouble with Web services is that the protocols used by an application or system are often incompatible because they are implemented differently for instance. For example, users of POP3-based Internet e-mail systems might not have the full features, such as the ability to recall messages or track them, if messages are sent to systems that use proprietary protocols.

The JLXE software would be hosted on a server and enable communications between applications. The software, which is hardwareindependent, works with Microsoft's .Net, Java 2 Platform Enterprise Edition, IBM's Web-Sphere, Novell's Silverstream and other Web service frameworks.

"We are going to move away from the thinking that a common protocol is going to be agreed upon by everybody," Burton says. "What

we need to do is come up with a dynamic protocol framework that lets the semantics of a protocol float."

He says that because services are defined by the protocols they use, such as SNMP, Simple Mail Transfer Protocol (SMTP) or Lightweight Directory Access Protocol (LDAP), their features are limited when communicating with services that use other protocols.

At the heart of JLXE is a collection of protocols defined in XML. JLXE uses Extensible Stylesheet Language Transformation (XSLT) as the programming language. XSLT converts XML documents from one form to another.

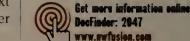
The first technologies JLXE's software will support include FTP, HTTP and SMTP, followed by LDAP and Web services protocols such as Simple Object Access Protocol (SOAP) and Web Services Description Language (WSDL). JLXE creates what's known as a semantic agent by taking a protocol and defining it in XML. Once the protocol is broken down, it can be mapped to another using that protocol's semantic agent.

The semantic agents could be particularly relevant with Web services. For example, vendors and standards bodies are develop-

ing a handful of Web services protocols that govern workflow. JLXE would let applica-

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#### Geoffrey Moore

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#### Agenda Snapshot\*

For details, updates, and to register visit our Web site.

#### Sunday, October 27

9:30am-11:00am Industry Primer Tracks

Noon-5:00pm Golf Outing (complimentary for users) at Disney's

Lake Buena Vista Golf Course

**SNIA-produced Technical and Business Tutorials** 1:00pm-5:30pm

- Voice of the User and Virtualization Track
- · Disaster Recovery, Backup/Restore, and High Availability Solutions Track
- Securing and Managing Your Storage Networks Track
- Focus on Networking Your Storage Track
- IP-based Storage Track

7:00pm-9:00pm Pre-conference Networking Reception

#### Monday, October 28

7:30am-8:15am **Continental Breakfast** 

8:30am-9:15am Opening Visionary Presentation by Geoffrey Moore

9:15am-12:15pm General Sessions 12:15pm-1:30pm Networking Luncheon 1:30pm-4:00pm **General Sessions** 

4:00pm-5:00pm Technical, Technical/Business and Business Tracks

5:00pm-8:00pm Expo, Interoperability and Solutions Demo,

and Ruffet Dinner

#### Tuesday, October 29

7:30am-8:15am Continental Breakfast

8:15am-8:55am Opening Leadership Presentation by Fran Dramis

**General Sessions** 8:55am-Noon Noon-1:30pm Expo, Buffet Luncheon

Noon-7:15pm Interoperability and Solutions Demo 1:30pm-3:00pm **General Sessions** 

Technical, Technical/Business and Business Tracks 3:00pm-5:00pm

5:00pm-7:15pm

7:30pm-9:00pm **Gala Dinner and Entertainment** 

#### Wednesday, October 30

7:30am-8:30am

Continental Breakfast 8:30am-Noon

Technical, Technical/Business and Business Tracks

\*subject to revision

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MARK PRICE Enterprise Architecture



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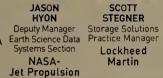


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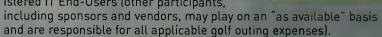
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#### Registration

Options: All Dollar Amounts in U.S. Funds	Earlybird Registration (through Sept. 16th)	Full/On-Site Registration (after Sept. 16th)	Conference Sessions	Package Includes: Interoperability and Solutions Demo, Expo, Meals & Receptions	Technical and Business Tracks SNIA-produced Tutorials, SNIA Certification "Test-Ready" Cours
General Conference Package* (Oct. 28 & 29):	\$1,095	\$1,245	Yes	Yes	No
Total 4-day Package* (Oct. 27, 28, 29, 30):  • General Conference Package  • Technical and Business Tracks  • SNIA-produced Tutorials (Oct. 27)  NEW!  • SNIA-Certification "Test-Ready" Courses (see Web site for details)	\$1,490	\$1,690	Yes	Yes	Yes
Expo, Interoperability and Solutions Demo, Meals & Receptions Only Package	\$450	\$495	No	Yes	No

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\*Includes Expo, Interoperability and Solutions Demo, Meals and Receptions

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# Force 10 aims high with 10G switch

**BY PHIL HOCHMUTH** 

MILPITAS, CALIF.— Force 10 Networks this week will debut a box that could help large corporations and carriers build beefier Gigabit and 10G Ethernet capacity than the most high-end switches currently available.

The E1200 and E600 switches from Force 10 could be used to aggregate large amounts of Gigabit server connections in a large data center or to connect data centers with 10G Ethernet links in a metropolitan-area network, the company says. For an idea of the scale Force 10 is targeting, consider this: The company does not offer 10M or 100M bit/sec Ethernet ports only Gigabit and 10G.

Aiming squarely at high-end switches from Cisco, Extreme Networks and Foun-



Force 10's E1200 and E600 switches are aimed at large data centers with highthroughput needs.

dry Networks, Force10's 14-slot E1200 chassis can support a maximum of 336 Gigabit Ethernet ports, 28 10G Ethernet ports or a mix of the two speeds. The company says it also supports Layer 2 switch-

ing and fully Layer 3 routing at wire speed on all ports. The switch also supports Multi-protocol Label Switching and redundancy protocols such as Virtual Router Redundancy Protocol.

Force 10 is officially launching as a company this week, though it has been working with customers for the past year or so. Along with its E1200 switch, the company also is debuting the E600, which offers half the port capacity but has the same switch fabric and uses the same modules as its big brother.

The architecture of the E1200 lets it scale far beyond competing switches, such as Extreme's BlackDiamond, Foundry's Biglron and Cisco's Catalyst 6500, according to the company and industry analysts. The E1200 has a 1.2T bit/sec backplane, or total switching capacity, which more than doubles the backplane of its closest competitors, Force 10 says.

The switch is also the first product that can offer true 10G bit/sec throughput on each of its slots, the company says, with a per-module bandwidth of 40G bit/sec between the module and the switch backplane. This is key, industry analysts say, as Force 10's competitors offer only 8G bit/sec of bandwidth per slot.

Some customers say this fact can shortchange users looking to get a full 10G connection, unless two 10G ports are trunked together.

"Force10 has set the bar in terms of 10 Gigabit performance," says Kevin Walsh, senior network engineer at the San Diego Supercomputing Center (SDSC). Walsh uses two E1200s to connect a cluster of 512 Gigabit Ethernet servers as part of the Teragrid project, an effort by the SDCS, along with the National Center for Supercomputing to build the world's See Force10, page 18

■ Hewlett-Packard's server business took a beating in the second quarter as the company lost ground to its major rivals, according to data released last week by Gartner. Overall, worldwide server revenue shrank to \$10.1 billion in the second quarter, down from \$11.6 billion in the same period a year ago. All the major vendors saw their revenue fall, but HP and Compag, now one company, showed the largest drop-offs.

HP's total revenue from server sales slipped 21.3% year-on-year, and Compag's fell 21.8% over the same period. By comparison, IBM's server revenue fell 7.8%, while Sun and Dell each saw their revenue decline by 3.5%, Gartner reported. Meanwhile, IBM, Sun and Dell were able to gain market share against HP. IBM held its top spot in worldwide market share, gar nering 29.6% of total server revenue, an increase of 1.6 percentage points from last year. Sun took the secondlargest slice of the market with 18.4% of revenue, up 1.8 points from the year before. Compaq's share came in at 12.5%, down 1.3 percentage points from last year, with HP just behind at 12.2%, down 1.4 points.

# Cisco turns up key switch security speeds

**BY STEPHEN LAWSON** 

Corporate customers can secure their network traffic at higher speeds and avoid proliferation of devices with a series of security hardware modules announced last week for the Cisco Catalyst 6500 Series switches.

The modules perform the same functions as existing Cisco security products, but at higher performance because they take advantage of new custom hardware, says Tom Russell, director of product marketing in Cisco's VPN and Security group. The Catalyst 6500 is one of Cisco's main chassis-based switch platforms for corporations and service providers. The security modules also can be deployed in the Cisco 7600 Series router.

Because the Catalyst 6500 is modular and comes with a range of chassis, it is possible to use just security modules to create a dedicated security switch for a corporation, says Zeus Kerravala, an analyst with The Yankee Group. This might be attractive to companies where security and network operations staff are separate and don't want to share gear.

Having multiple security functions on the same box makes for simpler management than a series of devices each performing a separate function, Kerravala says.

The lineup of new hardware includes a VPN Services Module and a Network Analysis Module, available now, and a Firewall Services Module and a Secure Sockets Services Layer (SSL) Module available this month.

The VPN module can encrypt and de-

businesses want security integrated in a high-end switch vs. separate security appliances. SOURCE: THE YANKEE GROUP

crypt traffic with Triple-DES technology at 1.9G bit/sec and provide 8,000 concurrent VPN tunnels, using the IP Security standard. The card is based on Cisco's VPN 3000 remote access VPN gear and its router-based VPN equipment. The speed of the VPN card can handle heavy VPN traffic between enterprise campuses and from remote users on dial-up and broadband Internet connections, according to Russell. It is priced at \$35,000.

The new Network Analysis Module, NAM-2, provides roughly double the throughput of a current module for the Catalyst line, the NAM-1. The NAM-2 can monitor traffic at rates as high as 1G bit/sec to help administrators detect network problems and better use resources. The NAM-1 and NAM-2 are priced at \$18,000 and \$30,000, respectively.

The Firewall Services Module brings the functions of Cisco's Pix Firewall to the switch platform along with an increase in performance from the stand-alone versions. It can secure traffic at throughput rates up to 4G bit/sec, over as many as 100,000 connections per second. As many as four of the firewall modules can be deployed in one Catalyst 6500 chassis, and one chassis with multiple firewall modules can be used as a high-performance security platform. It is priced at \$35,000.

The SSL Services Module can encrypt and decrypt traffic using SSL at speeds up to 300M bit/sec, supporting as many as 2,500 connections per second. A typical deployment would be to off-load security functions from an e-commerce server behind the Catalyst 6500, Russell says. The module costs \$30,000.

Lawson is a correspondent with the IDG News Service's San Francisco bureau.

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# TOLLY ON TECHNOLOGY Jim



n the history of data networks and the high-tech market, there are few technologies that have a long history of being a dominant force. Ethernet is one of them. It has proven to be resilient in a number of ways.

I had the good fortune in the early 1980s to be at Digital Equipment when the experimental Ethernet systems from Robert Metcalfe and David Boggs from Xerox PARC were being commercialized. This was an early sign of the ability to take Ethernet from its starting rate of 2.94M bit/sec to 10M bit/sec. Ethernet won the battle over token-ring architectures by the logic of using lower-cost components,

## **Semper Ethernet**

pragmatic media and the virtues of Carrier Sense Multiple Access/Collision Detection. Then came the period of changes and a continual manifestation of Ethernet to adapt itself to new definitions and respond to new requirements.

The latter part of the 1990s saw in rapid succession: the refinement of the Ethernet specifications to support 100Base-T (100M bit/sec on Category 5 wiring), the movement to full duplex (to remove the need for collision detection and thereby allow for the increase in distance) and then the development of Gigabit Ethernet. The 21st century shows the continuation of this heritage to adapt to changing requirements and still maintain the essence of the protocol with developments in the 10 Gigabit arena.

The questions that I pose to anyone:

- Why does Ethernet survive the challenges?
- Why is there still a long-range expansion of Ethernet, despite that fact that it is the

senior citizen in the high-technology evolution game?

As I puzzled over the longevity of Ethernet, the answer came to me at SuperComm when I talked to the people from the Ethernet in the First Mile Alliance. Two major realizations came from my discussions with them.

The first is that the general view of most of the communications world is the customer is at the "last" mile, not the first. The last-mile point of view has the central office as the major point of focus with the customer on the periphery.

For Ethernet, there has always been the strong view of the consumer as the focus — even as far back as the early days at Xerox PARC of having an easy way to share printers. This is clearly manifested in the ongoing theme to reduce development costs by assuring that the same driver design will work regardless of the underlying media type or its speed.

The second was the open acceptance of

new and different media types to make delivery of Ethernet to consumers fit their needs and the needs of the service provided. Some of the new approaches include the use of a single fiber with different lambdas for the up- and downstreams, and the use of passive optical networks where the downstream is a shared broadcast and the upstream is a managed TDM done by control of the transmitting lasers. There is also Ethernet over DSL and the changes necessary to support Ethernet over voice-grade copper.

What has kept Ethernet strong and growing is listening to the user community and being open to change in response to the operating environment without compromising the essentials. Maybe this is a model we all should look at the next time we are arguing that our technology is the "right" one.

Quinn is vice president of technology at The Tolly Group. He can be reached at jquinn@tolly.com. Kevin Tolly is on vacation.

# NetScreen offers all-in-one security box

#### ■ BY TIM GREENE

SUNNYVALE, CALIF — NetScreen Technologies is planning a new product line that will include firewall, VPN and intrusion-prevention software in a single box, giving customers a way to beef up security without adding multiple devices to their networks.

Within 18 months, the company says it will ship the combination gear, which hasn't been named yet, on a new hardware appliance custom made to handle the heavy processing and storage load imposed by the security applications. The company also will upgrade its NetScreen-Global management software so it can set intrusion-prevention policies.

The new hardware platform will let the gear perform its combined functions at wire speed, NetScreen says.

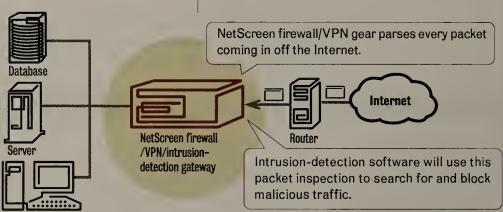
Several competitors, such as TippingPoint Technologies, CrossBeam Systems and CloudShield, are working on high-speed hardware to perform security functions in a similar fashion, says John Pescatore, research director for network security at Gartner. But, he says, NetScreen has a considerable number of customers already by virtue of its high-speed firewall/VPN equipment based on custom chips.

Placing intrusion prevention and fire-walling in the same equipment makes sense because it centralizes security policies, says Stephen Gill, a technical analyst with Greenwich Technology Partners, which uses NetScreen VPN/firewall equipment. "You are examining every packet at the firewall as it crosses your network anyway, so you might as well do intrusion detection at the same time," he says.

To work at gigabit speeds the device requires custom processors such as

Block those packets to s

Adding intrusion detection to its firewall/VPN appliances will give NetScreen gear the ability to sanitize Internet traffic at a single point.



NetScreen's, Pescatore says. "You have to do this type of deep packet inspection in hardware," he says.

NetScreen is obtaining intrusion-protection technology from OneSecure, maker of Intrusion Detection and Prevention (IDP) system software that it sells on PC hardware appliances. NetScreen is buying OneSecure for \$40.3 million stock sometime next month, and NetScreen will start selling IDP then with a NetScreen label.

By the middle of next year, the company expects to boost the speed of the gear to 1G bit/sec so the device won't become a bottleneck in Gigabit Ethernet networks.

But because part of what IDP does requires extensive storage capabilities, fully integrating IDP with NetScreen's firewall and VPN software demands a hardware platform with more memory. NetScreen says that platform and full IDP integration will be ready within 18 months.

Pescatore recommends against using these devices for remote-access VPN connections where individual PCs access a

VPN gateway via the Internet. The high number of remote-access connections make setting up the security parameters too complex to be practical. However, the equipment is well-suited for site-to-site VPNs because fewer individual VPN connections are involved, he says.

OneSecure says its software streamlines inspecting packets for telltale intrusion signatures, which are the patterns in traffic that indicate the packet might be malicious. Some intrusion-detection systems look for signatures in all packets, regardless of whether these packets might cause harm.

OneSecure says Sendmail Wiz Attacks that flood Simple Mail Transfer Protocol (SMTP) servers have their own signatures that can be identified by parsing every packet. But to avoid harm, only the control-session packets of the connections need to be analyzed and, if the signature is found, blocked.

Pricing will be set when the new boxes are announced.

NetScreen: www.netscreen.com

#### Force<sub>10</sub>

continued from page 17

largest distributed supercomputer. The cluster of two E1200s in San Diego connect to Juniper routers via 10G Ethernet. The Juniper routers then connect the SDSC site to four other sites on the Teragrid.

"There is no other manufacturer at the moment who has combined this kind of performance and capacity," says Walsh, adding that he has tested 10G Ethernet switches from other vendors.

In terms of total capacity and density, high-end boxes from Cisco and Extreme max out at around 256G bit/sec of backplane, and have a maximum of 192 Gigabit Ethernet ports. Foundry's Biglron has a 480G bit/sec backplane and supports 120 Gigabit Ethernet ports. All three vendors also offer 10G Ethernet modules.

Where Force 10 falls a bit short is in areas such as 1000Base-T ports — copper Gigabit modules are due out next year — and with higher-layer switching, such as Layer 4 load balancing or Layer 7 Web switching. (Extreme, Foundry and Cisco offer these features through hardware and software upgrades.)

Force10 switches will cost about \$2,200 per Gigabit Ethernet port, and about \$55,000 per 10G Ethernet port. The company says a base configuration for its E600 is about \$50,000, compared with a similarly configured Cisco Catalyst 6509, which costs about \$75,000.

Force 10's E1200, E600 and modules are available now.

Force 10: www.force 10 networks.com



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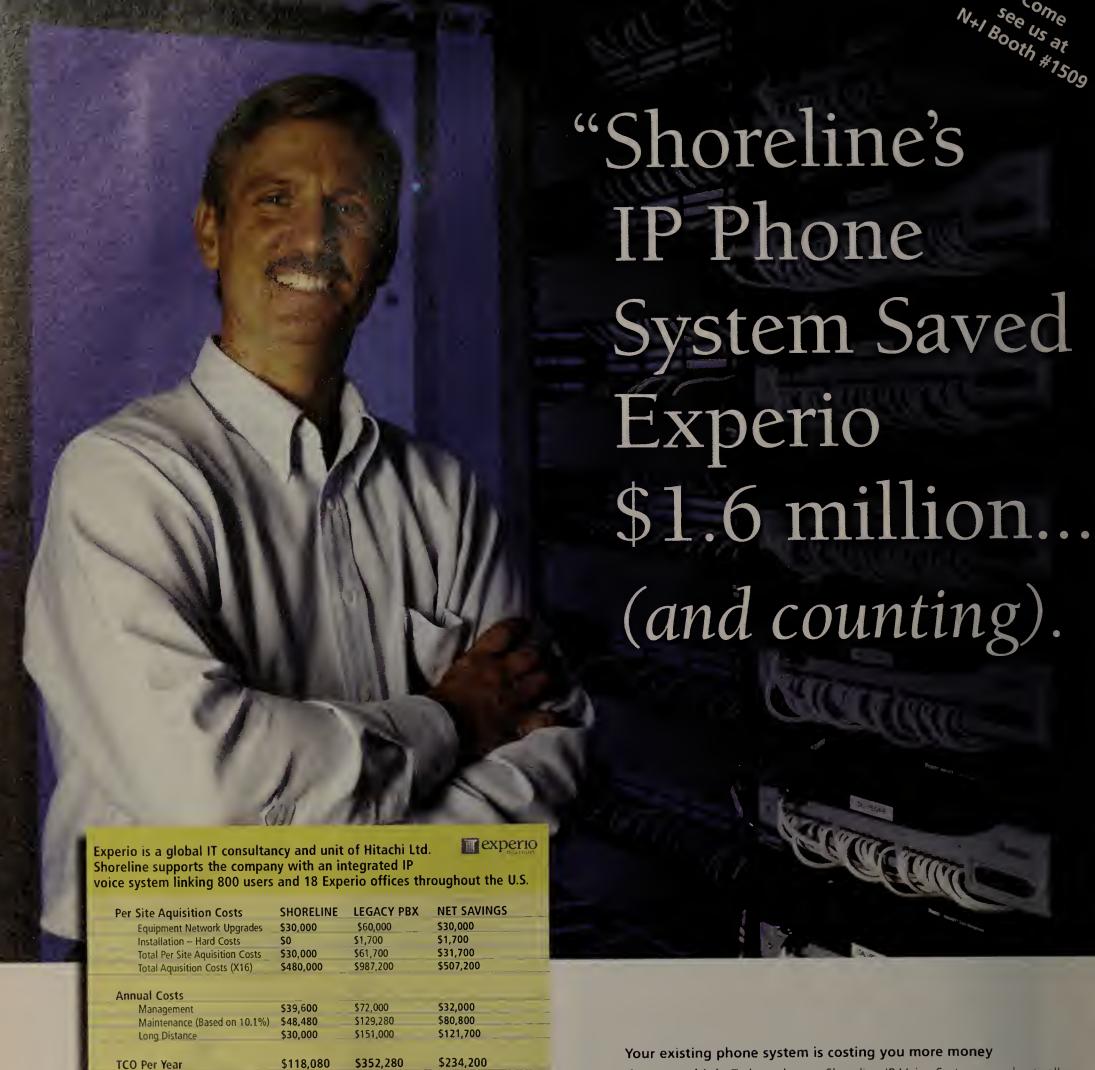
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#### **Takes**

■ PeopleSoft announced a partnership with IBM last week to offer preconfigured servers running IBM's DB2 database and middleware products and business software from PeopleSoft.

PeopleSoft said it will begin offering its Accelerated Solutions software packages on IBM's eServer line to customers in the U.S. and six other countries. The packages are fixed-price offerings that include PeopleSoft's Internet applications, technical training and implementation services. Until now they were not available overseas. The package will be aimed at businesses that generate up to \$300 million in annual revenue. PeopleSoft currently offers 10 Accelerated Solutions, each aimed at various industry segments and based on different PeopleSoft products. The packages come with unlimited user licenses and are designed to run on Unix or Windows NT. IBM Global Services also will take part in the partnership, promoting People-Soft's Accelerated Solution for CRM to its customers. www.peoplesoft .com; www.ibm.com

■ **Network Associates** announced last week it has agreed to purchase **Traxess**, a company that develops software that lets businesses monitor and store data about their employees' Internet activity.

Traxess, based in Lindon, Utah, developed DragNet, which lets network administrators or other IT staff access a copy of Internet traffic across their corporate networks on storage subsystems created by Traxess. Users can re-create files sent through the network, read e-mail or view Web files that employees access. Network Associates did not disclose financial terms of the purchase.

The company will integrate the DragNet software into products from its Sniffer Technologies division, which makes network analysis software, by the second quarter of 2003, it says. www.nac.com

## **Site:** Lessons from Leading Users

# Web service takes college to school

#### **BY ANN BEDNARZ**

Among 3,654 freshmen entering University of California, Berkeley this fall, 60% submitted a required form stating their intent to register, and paid the associated fee by credit card via the Web — a first for UC Berkeley freshman, who in past semesters couldn't pay the fee online.

This undergraduate admissions transaction is among the latest that UC Berkeley is automating through its new central credit card processing system for campus e-businesses. The system is part of a "paperless payment processing" initiative being executed by UC Berkeley's Information Systems and Technology department. The goal is to give scattered university departments a secure method of processing credit card transactions over the Internet, reducing paperwork and manual transaction handling.

See Berkeley, page 22

#### **E-business assistance** CyberSource handles the communication among banks, credit card companies and financial processing parties, so UC Berkeley doesn't have to. Purchaser places an Department e-commerce CyberSource collects order order on a department software passes the information and routes the Web site. order to Berkeley's transaction through its central cashier's hub. payment gateway to financial processing firms. Berkeley cashier's hub CyberSource payment system Internet **End user** Web sites for **ERP** system **UC Berkeley LAN** CyberSource returns transaction details to the processing firms Berkeley hub and updates financial systems.

# Tool eases Active Directory mgmt.

#### **BY JOHN FONTANA**

Javelina Software this week will release a tool kit that will help network professionals streamline and automate administration of Microsoft's Active Directory.

The company's ADvantage tool kit is client software that lets users perform what amounts to batch processing and eliminates the need to perform manual repetitive tasks or create customized scripts for procedures such as mass imports of users or resetting passwords.

The software also features a search-andreplace tool that allows for bulk changes to be made such as a ZIP code change that affects users' addresses stored in the directory.

The set of 11 ADvantage tools also can be grouped into customized subsets with

controlled access only to certain features and assigned to select administrators.

ADvantage also has a reporting capability that lets users extract information from the directory, such as all accounts



Get the lowdown on the stand-alone version of Active Directory.

DocFinder: 2036

that soon will expire. Those reports can be imported into other ADvantage tools and used to launch bulk modifications of the directory.

"Trying to get reports out of Active Directory is like trying to pull teeth. You have to create scripts," says Michael Hart, senior solutions provider for Conteks, a systems integrator in Lexington, Ky. "With ADvantage we can put on a filter to create reports on anything from organizational units to the entire directory."

Hart says he also uses the software to add users in bulk to the directory, especially after a merger.

"In one instance we used ADvantage to add 3,800 users as part of a mass import and were able to create 200 to 300 accounts per minute," Hart says.

See Active Directory, page 22

Bradner



9/2/02

off. It might be on a sometimes-imperceptible angle of ascent, but things are happening.

Hundreds of large companies are experimenting with Ethernet-based phones and voice-over-IP (VoIP) systems. A number of companies — including Cisco, in a demonstration of eating its own dog food — have gone "whole hog" for the new technology.

At the same time, millions of people are making phone calls over the Internet to reduce the cost of long-distance, and sometimes, local phone service. Two million of these people are in Japan alone —

### Are numbers prime?

1.7 million using Fusion Communications and another 300,000 using the new VolP service from Softbank's Yahoo broadband Internet.

But almost all these users share a common problem — they use phone numbers, even though such numbers are useless on the Internet.

There are two problems with using phone numbers for IP telephony. The first is that phone numbers have to come from some place. Because they were developed to identify telephone lines in the phone system, they are provided as an integral part of a phone service, and the numbers can be changed at the whim of the phone companies.

Because they only come with phone services, you currently need to have a phone service to have a number even if you want to use only the number and not the service. (Part of the Yahoo service fee is \$13 per month paid to the phone company for a phone line just to

get the number).

To add to the fun, phone numbers do not belong to the user. In the U.S., phone numbers cannot be sold, and if you move to another state you cannot take your phone number with you. At great cost to all phone users, you now sometimes can keep the same number when switching between phone companies in the same location.

The second problem with phone numbers is the more important one — with these numbers you are dehumanized and turned into a number. Some companies see a business opportunity in this dehumanization, but I hope they're wrong.

The IETF's Enum working group (www.ietf.org/html.charters/enum-char ter.html) has developed a way to turn a phone number into one or more domain name-based pointers that can be used to point to Internet services such as VolP phones, IP-based voice mail boxes, e-mail addresses and Web pages. This technology

is part of an important transition strategy but should not be an end goal.

As more of our interactions take place over the Internet, including calls made on next-generation cell phones, it is an ideal time to migrate from numbers to human-friendly name-based systems. E-mail addresses and Web page URLs prove that this can work. These names can be mapped into whatever addressing scheme is needed to get to the phone itself, but the user should never have to use a phone number

I guess I'm just not a number kind of guy. Disclaimer: Although the name "Harvard University" works better in the market-place than the number "16174951000," the university did not express an opinion on the idea of converting to numeric identities I did

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

#### Berkeley

continued from page 21

So far a handful of departments are up and running with paperless credit card processing. Thousands of university applicants, students and alumni have purchased goods and paid fees online. Several more projects are in the works, says Gary Thackeray, manager of departmental technology solutions.

The paperless system depends on a service from CyberSource to process the transactions electronically. CyberSource operates behind the scenes to authorize and settle electronic payments through built-in connections with third-party processors and merchant banks.

The vendor handles multiple credit card types — including bank cards, private-label cards, debit cards and procurement cards — along with multiple currencies. Companies deploy the software in-house or use Cyber-Source's hosted services. UC Berkeley chose the latter.

Before CyberSource, there was no standard way for departments to process credit card payments online, Thackeray says. A few departments had tackled credit card processing on their own, but most didn't have the resources to build secure systems, he says. "It's very costly to set up an infrastructure to take credit cards," Thackeray says. "So we kind of shied away from taking credit cards online."

For the most part, when people wanted to pay the university by credit card, they could by phone,

by mail or in person — options that require a university employee to get involved and manually swipe or enter numbers into a credit card machine.

Berkeley's paperless processing

#### filt's very costly to set up an infrastructure to take credit cards. So we kind of shied away from taking credit cards online. 11

#### **Gary Thackeray**

Manager of departmentmental technology solutions, Berkeley

initiative got off the ground last year with e-Giving, an online system for accepting fundraising donations. The Web site lets anyone with a Web browser give directly to the campus fund of his choice. As of April, the e-Giving program had raised more than \$360,000 and handled more than 1,200 online transactions.

University Relations was the first department on campus to use the CyberSource system, Thackeray says. "Now it's growing pretty rapidly," he says.

Along with University Relations, Graduate Admissions is using CyberSource to let prospective graduate students pay their application fees online using a credit card — a hefty chore to unload considering

the graduate division processes about 20,000 applications per year. In the last academic year, Graduate Admissions handled 3,274 payments electronically, according to the university.

The university's retail store for computer hardware and software, called The Scholar's Workstation also accepts online credit card purchases from students, faculty and staff. Through the Career Services department, businesses that participate in Berkeley career fairs can register and pay the fees online.

And through Parking & Transportation, students can purchase parking permits online with a credit card, and recipients of parking citations can pay their tickets. In the spring 2002 semester, 695 student parking permits were purchased online. In its first month of operation, 222 parking citations were paid online.

In addition to these services brought online during the past 12 months, Thackeray's group is working with four or five other departments to help add credit card processing to their Web sites, he says.

The way the system works is that a purchaser places an order on a department Web site, which passes the order information to a central cashier's hub that Thackeray's department built. This hub handles all outbound and inbound CyberSource transactions.

Berkeley transfers the order information to CyberSource over the Internet, and CyberSource routes the transaction-authorization request through its payment gateway to financial processing firms. The transaction is routed to the purchaser's bank to request transaction authorization. The transaction is authorized by the purchaser's bank or credit card company, which approves the transfer of money to the acquiring bank, which credits the merchant's account.

CyberSource returns the transaction details to Berkeley's hub and updates its financial systems. The CyberSource system is linked to Berkeley's financial systems on the back end, Thackeray says.

Paperless payment processing is an official e-Berkeley project. Conceived by university Chancellor Robert Berdahl, e-Berkeley is an ongoing campus initiative to upgrade and expand Webbased services and transform the way the university operates.

In broad terms, e-Berkeley is about reducing paperwork by

putting more information and transactions online; aggregating campus services and functions into easily accessible Web sites; and streamlining access to course information.

UC Berkeley selected Cyber-Source on its own. Now the UC system — which consists of nine campuses and more than 183,000 students — is following its lead. Last month, UC chose Cyber-Source as its preferred vendor for electronic payment processing. Because CyberSource charges per transaction, leveraging the university's full buying power makes sense, Thackeray says.

Universitywide centralization is not necessarily typical, but it's desired, Thackeray says. "It's a goal that a lot of the campuses are trying to do because of the cost savings and security opportunities. We try."

#### **Active Directory**

continued from page 22

Hart used a file created from a list of users imported from PeopleSoft and loaded it into ADvantage to create attributes such as user identifications, passwords and display names. Previously, he had to write custom scripts that made calls to the Active Directory Services Interface, a more complicated process that only let him create 100 to 150 accounts per minute.

"We got double the performance with ADvantage, and it insulates you from having to do any programming," Hart says.

lavelina competes with similar

tools from Hyena and Quest Technologies.

"This is an easier way to manage Active Directory than using the native Users and Computers tools," says Elena Kennedy, marketing manager for Javelina. She says ADvantage also provides tools not found in Active Directory, such as search-and-replace.

The ADvantage client runs on Windows 2000 and XP Professional desktops and on Win 2000 servers.

The software is available now, and costs \$500 per administrator until year-end. After Dec. 31, the price will increase to \$1,000. ■

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# THE INTERNET EXTRANETS INTEREXCHANGE AND LOCAL CARRIERS

■ USinternetworking last week announced it is expanding its perfor mance-based service-level agreements to cover its PeopleSoft ERP applications such as human resources and financial management. The application service provider already offers such SLAs for its hosted Microsoft Exchange application. USi crafts the SLAs according to customer need. It then monitors and reports on the performance of application transactions and processes such as user sign-on, content searches and saves, and batch processing. Performance results are accessible via USi's USiView client portal. If USi fails to meet application performance levels specified in the SLA, the client receives a service credit or money back on its monthly bill.

- **CVS** has begun using an 1P VPN from AT&T designed to improve the pharmacy chain's customer service capabilities and let it recover more quickly in the case of a disaster. The Woonsocket, R.I., company recently signed a multimillion dollar contract to upgrade its AT&T managed network service with an IP-enabled frame relay service. The first phase of the project, scheduled for completion in November, will convert CVS's network infrastructure to boost network efficiency and security, and enable disaster-recovery capabilities. Next, CVS will focus on adding new applications to the network.
- Sprint last week said it is extending its SprintLink IP network to the capitals of Chile and Venezuela to give businesses in the two cities a variety of Internet-based telecom ervices. Sprint will offer local and multinational businesses operating in Santiago and Caracas dedicated Internet access, IP VPNs, customer premises routers, managed network services and security services. These are the first two cities the SprintLink IP network will reach in Latin America. Buenos Aires, Argentina, and Bogotá, Colombia are next.

# Wireless carrier market prime for consolidation

Observers say mergers could result in better coverage for customers.

#### **■ BY JENNIFER MEARS**

With the economy dragging and the federal government preparing to lift spectrum caps, wireless carriers are doing a dating dance that could lead to a market consolidation that analysts have been expecting for some time.

The thought is that the six national carriers operating today - Cingular, AT&T Wireless, Nextel, Sprint PCS, Verizon and VoiceStream — will be boiled down to four or five big players. Industry

watchers say consolidation will have little effect on business customers' contracts, but expect it will result in broader coverage and better services as carriers combine

"Enterprise customers should expect change. But I don't think consolidation is going to be a price story. It will be a quality and capacity story," says Jeff Kagan, an inde-

pendent telecom industry analyst based in Atlanta. "It will be about companies getting healthier and being able to provide more applications because they have more spectrum and more bandwidth. It's about an industry that's maturing."

Rumors about consolidation have been

swirling this summer, with talk initially centered on a possible acquisition of VoiceStream by AT&T Wireless. Today, Voice-Stream, the U.S. wireless subsidiary of Deutsche Telekom that is being transitioned to the T-Mobile

name, is reported to be in preliminary merger talks with Cingular, which already uses VoiceStream infrastructure to provide services in New York.

Talks are at a very early stage, but analysts say they wouldn't be surprised to see deals coming to fruition shortly after the first of the year, when the Federal Communications Commission is slated to lift its spectrum limitations. Until then, any merger between the leading carriers would result in capacity that violated those caps.

"Since the mid-'90s, wireless has been the poster child for competition. There was just so much growth, and so many competitors and regulators pointed to it as this perfect model," Kagan says. "But there can be too much of a good thing. At this point we have too many competitors.... They're slicing up the pie too thin."

#### Struggle for profits

While the number of wireless subscribers continues to grow — albeit more slowly than in the past — carriers are finding it harder to turn profits. The carriers are challenged because increased competition has resulted in price wars that have led to services such as longdistance and roaming being bundled into plans for free. In addition, the carriers all are focused on the costly task of building

See Wireless, page 26

# SBC service to help prioritize apps

#### **BY MICHAEL MARTIN**

SAN ANTONIO, TEXAS - SBC Communications last week unveiled a service designed to help customers ensure their most important applications are given priority when traveling across a WAN.

Called Application Performance Management, the offering is one of the first managed services to follow traffic at the application layer, says Michael Harris, an analyst with Gartner.

The biggest hurdle SBC likely will have to overcome in selling the service is sticker shock, Harris says. For a customer with a T-1, the service costs approximately \$4,000 per site for equipment and a consultation, and then about \$500 per month,

"Customers will have to make the choice between doing this kind of traffic shaping or just throwing more bandwidth at their problems," Harris says.

For users who have slight bursts above their normal bandwidth consumption, traffic shaping likely wouldn't be worthwhile, observers say. But for customers who experience big bursts, such as financial institutions doing large backups regularly, SBC's service might be a fit.

The service uses equipment from Sitara Networks that sits between a customer's LAN switch and WAN router.

Once SBC sets up the Sitara equipment, secure, Web-based portal. the carrier will monitor the customer's traffic flow for two to four weeks. Then an SBC analyst will work with a customer to place its applications into one of three categories - business-critical, businessimportant and best-effort.

SBC will go over the customer's network traffic monthly and make any necessary adjustments. Customers can view their application traffic at any time through a

#### **Managing nicely**

According to research firm Ovum. the worldwide managed service provider market will grow from about \$2.5 billion in 2001 to about

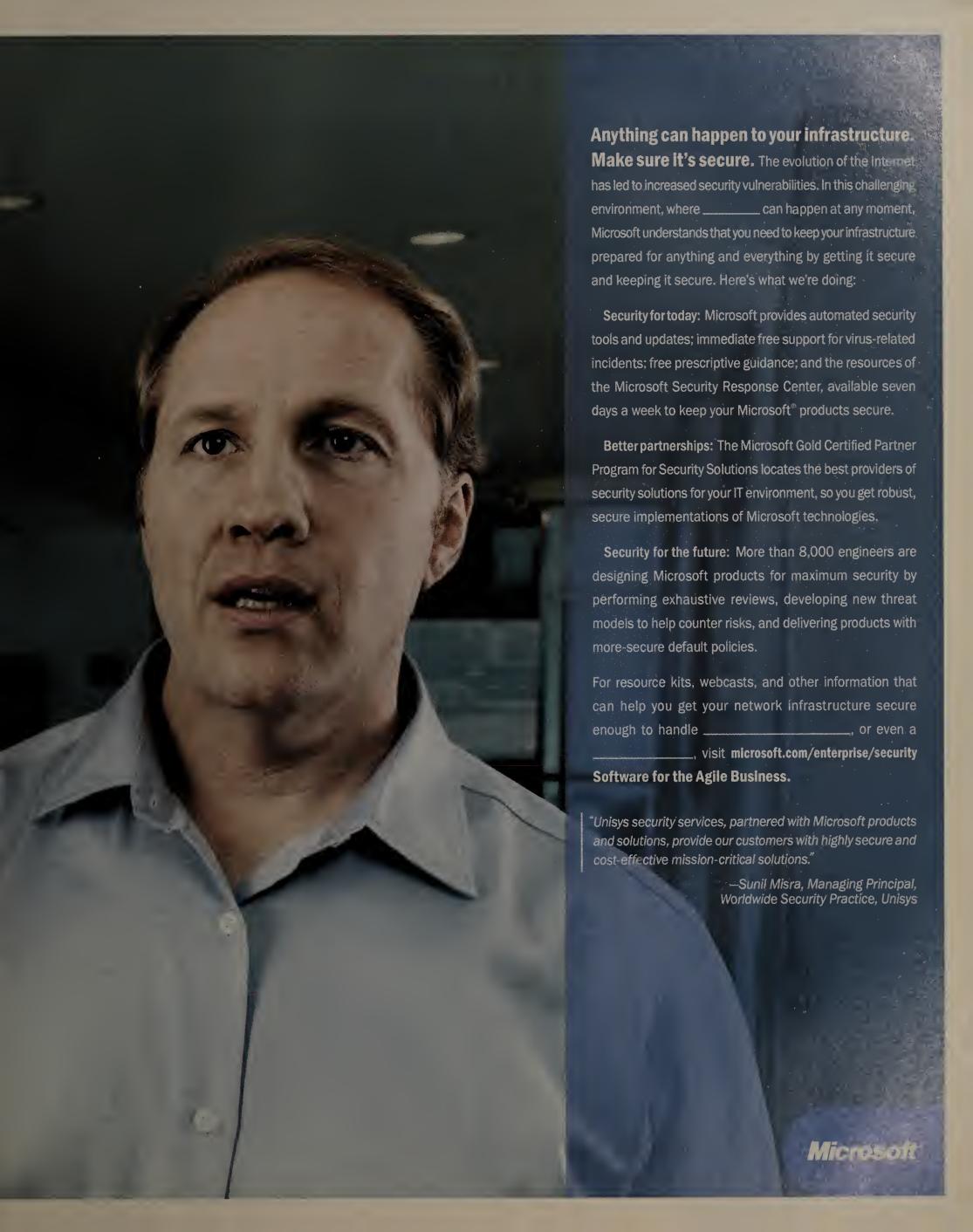
\$15 billion by 2006.

In addition to its traffic-shaping features, SBC's service provides local caching of frequently accessed Web pages at a customer site to reduce WAN traffic.

The service works with any type of WAN connection and is interoperable with Multi-protocol Label Switching, automatically mapping applications into an MPLS scheme.

SBC: www.sbc.com

There's a new the Web. Are we secured against that?"





et's take a look at one of the hottest yet least-heralded trends in enterprise networking lately: videoconferencing. Virtually all my large enterprise customers are reviewing their videoconferencing strategies for two main reasons: travel cost and technology innovation.

As the economy slowed last summer, most companies cut their travel budgets by 25% or more. After Sept. 11, many companies instituted an outright travel freeze.

"We had cut our travel budget by 50% even prior to 9/11," says the head of telecommunications at one large company. "Now we basically don't travel." With the airlines in convulsions and the economy remaining flat, it's not likely the situation

## Video over IP: The time is (sort of) nigh

will improve any time soon.

As for technology innovation, the videoconferencing market clearly is at an inflection point. Back in the mid-nineties, the big news was that advanced compression algorithms could reduce bandwidth requirements for video to (gasp!) T-1 speeds and below. These products still required dedicated networks (leased line or ISDN), but for the first time, your average big company could deploy videoconferencing.

That was then. Now the first-generation companies that pioneered these advances have been swallowed up by others:VTEL purchased Compression Labs in 1997, and PictureTel became part of Polycom last October.

The story today is integration with IP. Companies such as VTEL, Polycom and WireOne offer both products and services enabling video over IP. For instance, last spring Cisco introduced the IP/VC 3540 multipoint control unit as part of its Architecture for Voice Video and

Integrated Data.

Moreover, as noted in some of my previous columns, many businesses are justifying the rollout of IP VPN services by consolidating their video and data networks.

Does this mean the advent of ubiquitous video over IP is nigh? Sort of. Most companies still are hammering out functionality issues with their installed (conventional) equipment base. Says one video manager, "The perception is that our videoconferencing services are broken."

The main concern is ease of use. Despite decades of technology innovation, most videoconferencing systems remain counterintuitive and difficult to use - which translates to being expensive to support, because you have to maintain a bank of technicians to answer simple questions ("Where's the 'on' button?"). The result: Rolling out a global videoconferencing service still requires far too much engineering particularly of the human kind.

So what's a network executive to do? First, if you haven't looked into upgrading your videoconferencing services and systems, you might want to start. Technology has come a long way in the past year or two, and there are options you might not have considered the last time you looked.

Second, get a clear understanding of how it's going to be used and by whom. Engineers and developers naturally will have a higher tolerance for complex user interfaces and spotty performance than senior executives, who require straightforward instructions and crystal-clear quality. (Didn't I put that politely?)

Finally, if you aren't seeing the ease of use and functionality you need from your vendors, push back. Any company who wants to play in this space needs to make its products and services easy and conve-

Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting and engineering firm. She can be reached at johna@green wichtech.com.

#### **Wireless**

continued from page 23

out their networks to support next-generation services. The hope is that new services, such as data transmission, will provide the additional revenues the carriers need, but adoption has been slow.

In the meantime, wireless companies have seen their stock prices plummet along with the rest of the telecom sector, and that is helping to spur a move toward consolidation.

Deutsche Telekom has confirmed that it is considering a sale of VoiceStream, which it acquired last year in a cash/stock deal initially valued at about \$50 million. Today, the German telecom company reportedly is considering off-loading VoiceStream to help raise some \$6.9 billion it needs to meet its debt targets. Analysts say VoiceStream would

#### **66...** The question is who's going to buy whom and for how much. 77

#### Andrew Seybold

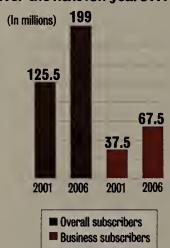
Wireless industry analyst, Andrew Seybold Group

fetch only between \$10 million and \$15 million.

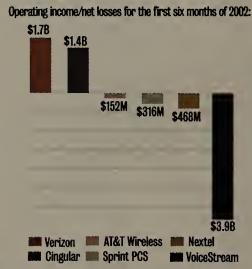
"It's one of the strongest examples of buying high and selling low," says David Chamberlain, research director for wireless Internet services and networks at

#### The wireless scene

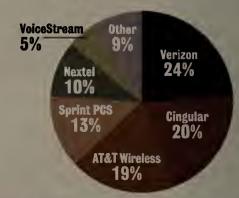
While the number of wireless subscribers is expected to boom over the next few years...



... many major carriers are struggiing to turn a profit ...



... leading to rampant speculation that carriers will form mergers to combine resources, cut expenses and gain market share.



Based on revenue at the end of 2001. Total market is \$72.9 billion, including service, equipment and other related revenue.

SOURCE: 10 C AND COMPANY REPORTS

Probe Research." Overall, weakness in the market is driving people to look [for merger or acquisition opportunities]."

Analysts say VoiceStream, AT&T Wireless and Cingular are the three wireless carriers most likely to be in play at this point because of their focus on GSM and General Packet Radio Service (GPRS).

"AT&T and Cingular don't have enough spectrum for the technology they're using," says wireless industry analyst Andrew Seybold, of Andrew Seybold

"Now that the federal government has said there will be more spectrum available in 2008, they're realizing the only way they're going to be able to get enough spectrum is to acquire somebody or merge with somebody," Seybold says.

In the meantime, carriers are looking for ways to drive down expansion costs. Partnerships have formed. Last year, Cingular and VoiceStream entered into a deal in which they share infrastructure, letting Cingular offer services in New York City and VoiceStream to provide service in California and Nevada. In January, Cingular announced a joint venture with AT&T Wireless to build out next-generation network coverage along 3,000 miles of interstate highways in the West and Midwest.

When considering consolidation, several issues come in to play, including the technology the carriers are using. As the carriers upgrade their networks, they are taking different routes.

Verizon and Sprint are basing

their networks on new Code Division Multiple Access technology called 1xRtt (or CDMA2000), which today has average speeds between 40K and 60K bit/sec and can support bursts up to 144K bit/sec. GPRS, the technology AT&T, Cingular and VoiceStream are using to upgrade their networks, supports speeds between 20K and 40K bit/sec with bursts up to 115K bit/sec. Meanwhile, Nextel's network is based on iDEN, a digital technology Motorola created that handles speeds between 25K and 30K bit/sec, with bursts up to 75K bit/sec.

Other factors that will affect mergers are where carriers might have gaps in coverage and how a merger could help fill those holes.

"The thing to remember is everything is rumors at this point. And there will be more and more rumors," Seybold says. "But the real question is whether six [national] carriers can survive. That indicates that there will be consolidation in the marketplace. The question is who's going to buy whom and for how much."



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# Special Focus P CENTREX: Extending the PBX.

# **RBOCs bringing new life to Centrex**

**BY MICHAEL MARTIN** 

P Centrex services have been available through competitive service providers for more than a year, but with the regional Bell operating companies now set to launch their own offerings, the technology may finally come into its own.

Like regular Centrex services, IP Centrex off-loads all the call management, moves, adds and changes from the user to the carrier. Instead of maintaining and managing a PBX, users pay a monthly fee to their carriers for a service that delivers similar functionality.

But IP Centrex — which will soon be available from BellSouth, SBC Communications and Verizon — boasts advantages over regular Centrex. For example, IP Centrex customers can simplify their networks by running voice and data over their LANs and a common high-speed WAN connection, whereas older Centrex services were restricted to handling voice traffic over regular phone lines.

"[IP Centrex] could take a small, but significant portion of the PBX market," says Joe Gagan, an analyst with The Yankee Group.

There are two markets IP Centrex will appeal to, Gagan says. One is organizations with fewer than 40 employees and a need for some calling features, but no budget to maintain a PBX. The other is organizations, such as those in government and education, that have 1,000-plus end users but don't need as many calling features as some large companies.

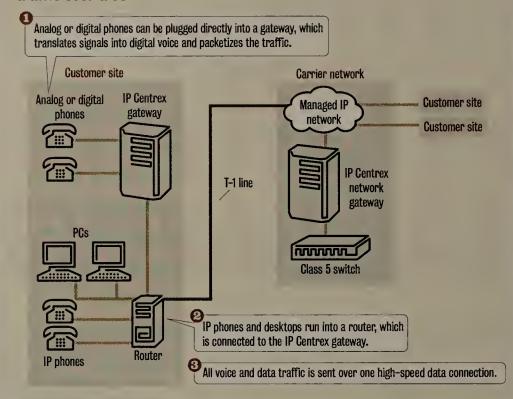
Centrex, which traditionally has appealed to small companies with limited telephony expertise, accounts for less than 10% of the overall business telecom service market. A typical Centrex service costs about \$30 per line, per month, plus a small fee for installation, whereas a PBX costs from \$500 to \$1,000 per port upfront.

There are several reasons for traditional Centrex's lack of appeal: Moves, adds and changes have required calls to the telecom provider; features haven't been as rich as those in a PBX; and every inbound voice call has required a separate line, unless a company uses a more expensive ISDN Centrex service.

Among the benefits of IP Centrex is that it can let customers make moves, adds and changes through Web-based portals instead of having to call their service providers.

#### A unifying force

Like a traditional Centrex service, IP Centrex lets a customer hand off PBX management to a carrier, which then would handle telephony functions such as moves, adds and changes. Unlike traditional Centrex, the IP version makes it so that customers can run their voice and data traffic over a common infrastructure.



#### IP Centrex's appeal

Among the benefits of IP Centrex is that it can let customers make moves, adds and changes through Web-based portals instead of having to call their service providers. And customers don't need to worry about whether they have enough individual voice lines. Instead, they just need to be concerned with whether the one broadband data connection used for both voice and data is fat enough.

Another advantage of IP Centrex is that it lets remote or traveling workers stay more connected to the office by letting them keep their office phone numbers and calling features with them at home or on the road. Because the phone number and calling features are tied to an IP address, all a user needs is a connection back to the corporate LAN. This feature also helps with in-office moves.

"You can unplug your phone on the LAN, move to another office, plug it in and it will recognize your

phone number," says Lou Morales, director of Centrex product marketing for SBC, which plans to launch IP Centrex in five cities later this month or early in October. A broader rollout is scheduled for next year.

The government and education sectors have been most interested in IP Centrex, says Melanie Murphy, executive director of premises solutions for SBC. Those sectors are also SBC's biggest purchasers of traditional Centrex.

"Most likely it's because they have to work within fixed annual budgets, and with Centrex

and IP Centrex there are no big upfront costs," she says.

Because IP Centrex is a fully managed service, the customer does not have to purchase any special equipment, Morales says. All SBC requires for IP Centrex is a minimum commitment of 15 lines, a 100M bit/sec LAN and an assessment of the customer's LAN to ensure it can handle packetized voice.

The key IP Centrex technology is housed mainly within the carrier network (see graphic). It relies on either a Class 5 switch or softswitch at the central office to provide calling features. Providers using Class 5 switches separate the data traffic from the voice using a network gateway on the carrier side and a customer gateway, or IP phones that act as their own gateways, at the customer premises.

Providers using softswitches also employ network gateways at the customer premises but rely on signaling gateways in the central office to send voice traffic to the public switched telephone network.

#### **Crowded market**

Among the other carriers giving IP Centrex a shot is BellSouth, which has conducted technical trials and plans to roll out services later this year.

Like SBC, BellSouth will target accounts with 1,000 or more end users. Much of the customer interest so far has come from companies looking to give teleworkers data and voice service with advanced calling features over one broadband connection, a company spokesman says.

Verizon also is getting set to launch an IP Centrex service, but with a twist. The carrier will make the service available out of region in Chicago, a market where SBC is the incumbent. Unlike BellSouth and SBC, Verizon will use GoBeam to launch a Verizon-branded service.

Until now, GoBeam probably has been the most successful IP Centrex service company, Yankee's Gagan says. The company provides service directly to approximately 10,000 businesses across the country and through a wholesale channel.

One reason IP Centrex has struggled to take off, Gagan says, is that equipment providers first tried to sell their wares to competitive providers. When many of those carriers went bankrupt, the equipment companies were left with almost nothing to show for their efforts.

Another reason is that it's difficult to engineer a data network to provide emergency 911 service, integrate it with old telephony systems and provide acceptable quality of service for voice.

The RBOCs finally are getting into the market, Gagan says, because of customer pressure.

"A lot of customers aren't happy with existing Centrex services, so the RBOCs are being forced to do something," he says.











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# SERVICE PROVIDER DEVELOPMENTS AT THE JUNCTURE BETWEEN THE ENTERPRISE AND THE NEW PUBLIC NETWORK

# Takes

of its electronic bonding software for service providers that speeds the ordering of services between service providers. If one carrier needs a local circuit to complete a dedicated line to a customer, the ezaccess 3.4 software can transmit the order without the manual copying of requests that can create errors.

This latest version of ezAccess supports industry standard Access Services Ordering Guidelines that were issued last month.

- Semiconductor maker **Voyan** says it can demonstrate components that deliver 10M bit/sec to 50M bit/sec on copper pairs over distances of 9,000 to 12,000 feet. This is a significant improvement over DSL technology that performs slightly better than T-1 speeds over those distances. DSL can deliver higher bandwidth, but only over short stretches. The Voyan technology has not yet been put in commercial products. www.voyan.com
- Hatteras Networks, which is also making more efficient use of existing copper access lines by running Ethernet over them at up to 12,000 feet, has managed to get venture capitalists to believe in its ideas. The company has received \$45 million from ComVentures, Grotech Capital Group, Bessemer Venture Partners and Columbia Capital.
- announced upgrades to its Sechtor 300 access gear for service provider networks. The equipment, which can be placed in remote terminals or switching offices, now supports automatic remote testing of the gear, a two-port STS-1 eptical card and aggregating basic-rate interface ISDN lines by using a single control channel per tour payload channels.

# Long-haul carrier gets packets

Infrastructure saves money and sets stage for new services.

#### **BY TIM GREENE**

BUTTE, MONT. — The long-distance arm of Touch America has shifted from the old way of supporting voice services to an IP-based platform that can support existing services and a batch of new ones that the legacy technology cannot.

The carrier has installed packet equipment from Bay Packets that replaces service control point (SCP) technology it had been leasing from other carriers to support advanced circuit-switched offerings such as toll-free phone services and virtual private voice.

In addition to installing Bay Packets' Rapid Service Introduction system, the provider has moved from leased Nortel circuit switches to Sonus softswitches, says Mike Clark, Touch America's director of services engineering. Initially, the carrier leased the Nortel gear from carriers such as Qwest, whose long-distance customer base it bought two years ago.

Touch America's customers can see no difference in the quality of their services despite the change in underlying network infrastructure, Clark says. They also see no next-generation services yet; those are still in the future.

Meanwhile, Touch America is reaping benefits. For instance, the carrier needs less space and power to accommodate the Bay Packets gear, which takes up a half rack vs. two racks occupied by traditional SCP offerings from companies such as Alcatel and Tekelec.

Managing the gear also is more cost-effective because it uses a graphical user interface that requires less training to learn than the command-line interface used by the other equipment, Clark says. Once technicians learn the GUI, they can set up services faster than by using command-line interfaces he says.

The new setup also leaves open the possibility of granting customers Web access to service provisioning so they can set up user groups within their voice VPNs and manage their dial plans without assistance from Touch America personnel.

The time to implement Bay Packets' equipment is less than 60 days vs. six months for the SCPs. And developing new service software takes less time, according to Clark.

He says the cost of Bay Packets' equipment was significantly less than that of the

SCPs, but because of confidentiality agreements Clark made with the SCP vendors, he could not say how much less.

Because Bay Packets gear uses session initiation protocol (SIP), it leaves open the possibility of services that could benefit call centers.

For example, a SIP invitation that initiates a phone call also could dip into a database for information about the caller's customer history, so the call center agent has a computer screen of customer data before picking up the phone.

"When we use SIP all the way to the customer, this will be a clear differentiator for our services," Clark says. ■

#### Doing it a new way

Service provider Touch America is moving away from TDM gear to reap the benefits of packet technology.

- Packet gear takes up less space and uses less power.
- New services can be implemented faster.
- TDM equipment is more expensive.
- Users can control their own services directly via packet interfaces.
- Packets make more efficient use of bandwidth.

# Intel readies optical parts to lower carriers' costs

Tunable lasers, processor to improve efficiency.

#### **■ BY STEPHEN LAWSON**

SANTA CLARA — Intel's drive into optical networking will produce a transceiver with a tunable laser and a processor that should help carriers send signals reliably over longer distances, both of which could help lower the cost of optical networks, according to sources familiar with the company's plans.

The Santa Clara company is developing the products as part of a broad initiative in the optical network equipment market. The timing of the introductions of these two products was not clear, and Intel declined to comment on unannounced products.

Over the past two years Intel has made massive investments and bought several companies in the optical arena, with a vision of optical fiber as the high-speed connection of the future in large enterprise and service-provider networks, said Sean Maloney, vice president and general manager of Intel's Communications Group, at the Intel Developer Forum in February.

The company aims to reduce the cost of optical gear through economies of scale, similar to the downward trend in microprocessor prices.

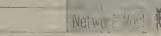
The upcoming transceiver will be Intel's first to use a tunable laser, which can be

adjusted to transmit several different wavelengths, according to sources familiar with the plans.

In wavelength division multiplexing systems, one fiber can carry multiple wavelengths of light, each carrying its own data signal. Tunable lasers are designed to reduce a high-cost requirement in current systems that use fixed-wavelength lasers: Carriers need to have one replacement laser on hand for each one in active use. A tunable back-up laser can substitute for any of a number of different lasers. Intel is expected to develop a more widely tunable laser that can be tuned to use an even larger number of wavelengths. The company will develop this laser using technology it acquired in May from New Focus, the sources say (see www.nwfusion.com, DocFinder: 2029).

Lawson is a correspondent with the IDG News Service's San Francisco bureau.

# More online! Learn more about Intel's laser plans. DocFinder: 2035



# Pan inside look at the technologies and standards shaping your network

# Portal standards for Web services

#### ■ BY THOMAS SCHAECK AND STEFAN HEPPER

Portlets, or portal applets, are visual components that make up a Web page residing in a Web portal. Typically, when an end user requests a personalized Web page, multiple portlets are invoked when that pages is created.

An example is a news/financial portal that displays a single page including updated financial news, a report on how the stock market is doing and the latest information on stocks of interest to the end user. Each component has its own portlet.

Portlets rely on APIs to access various types of information, such as user profile. The lack of standards has led portal server platform vendors to define proprietary APIs for local portal components and for invocation of remote components. This creates interoperability problems for portal customers, application vendors, content providers and portal software vendors.

Java Portlet API and Web Services for Remote Portals (WSRP) standards are being developed to overcome these problems, providing interoperability between portlets and portals, and between portals and user-facing Web services.

Java Portlet API establishes interoperability between portlets and portals. All portlets written to a portlet API will run on all compliant portal servers.

Similarly, WSRP will enable interoperability between portals and WSRP-compliant Web services for portals.

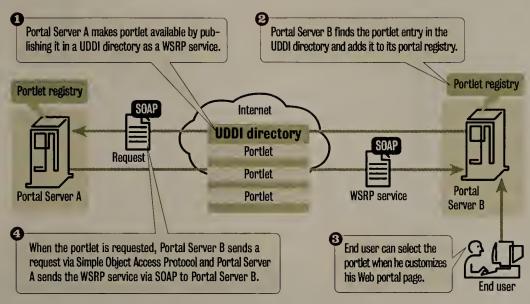
Java Portlet API will cleanly separate portlets from the surrounding portal server infrastructure so that the portlets

#### P

#### Portlet standards for Web services

HOW IT WORKS

Java Portlet API and Web Services for Remote Portals
(WSRP) creates interoperability between portals, portlets
and Web services.



can run on different portal servers, just as servlets can run on different application servers.

WSRP services are presentation-oriented, user-facing Web services that plug and play with portals or other applications. They are designed to let businesses provide content or applications in a form that does not require any manual adaptation. Portals easily can aggregate WSRP services without programming effort.

Because WSRP includes presentation features, WSRP service providers can determine how end users see their content and applications, and to what degree adaptation, transcoding and translation might be allowed.

WSRP services can be published into

public or corporate service directories (Universal Description, Discovery and Integration), where portals that want to display their content can find them easily.

Using WSRP, portals can easily integrate content and applications from internal and external content providers. A portal administrator simply picks desired services from a list and integrates them.

The WSRP standard will define a Web services interface using Web Services Description Language. The standard lets WSRP services be implemented in different ways, be it as a Java/Java 2 Platform Enterprise Edition (J2EE)-based Web service, a Web service implemented on the .Net platform or a portlet published as a

WSRP service by a portal.

The standard enables use of generic adapter code to plug any WSRP service into intermediary applications rather than requiring specific proxy code. This will allow implementation of WSRP services on any Web services-capable platform, be it J2EE or .Net. The WSRP technical committee plans to have Version 1.0 ready by year-end.

Java Portlet API and WSRP will be able to cooperate in a beneficial way. WSRP services could be integrated in portals through portlet proxies written to the Java Portlet API. Conversely, portlets could be wrapped in and published as WSRP services.

Once a portlet entry is listed in the UDDI directory, other portals can find and bind to the referenced WSRP service. To make a WSRP service available as a portlet, the portal's administration may create an entry in the local portlet registry with the information obtained from UDDI.

For example, once the entry is in the local portlet registry users might select it and put copies of it on their pages. When a portlet proxy is invoked during page aggregation, the portlet proxy will generate a Simple Object Access Protocol (SOAP) request and send it to the WSRP service. Then it receives the SOAP response from the WSRP service and provides the result to the portal.

Schaeck is an architect in WebSphere Portal Server development at IBM and chair of the WSRP technical committee. Hepper is part of the IBM WebSphere Portal Server project and co-leads the group standardizing Java Portlet API.

#### Ask Dr. Internet By Steve Blass

We're designing a frame relay network and a major issue is zero tolerance of downtime. What is the threshold of too much redundancy? We've designed a location where the customer will host his server for remote users to access. The customer will not be able to physically touch his servers, so dual routers, dual switches and dual network interface cards have been added to the servers. A mirrored setup is in a location 80 miles away. Should there be only one router per site backing up each other, or should we contin-

#### ue with dual routers per site?

The threshold of too much redundancy is found where the cost of the increase in availability exceeds the cost of the business loss that would result from an outage. Zero downtime can be expensive. Are there two frame relay entrances to each site from separate carrier backbone switches or would the redundant routers be connecting to the same WAN circuits? Look at your overall mean-time-between-

failure and mean time-to repair considerations to decide whether dual WAN routers make the most sense for your network reliability dollars. Go to www.nwfusion.com. DocFinders: 2032 and 2033, to find some links about calculating overall system availability for component-based systems.

Blass is a network architect at Change @Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE Mark

Gibbs



his week: Talking heads. No, not the pop group — something called Veepers, one of the coolest Web presentation tools we've seen for awhile.

A Veepers presentation (called "a Veeper") is a simulation that displays a cunningly animated and manipulated photograph of someone's head to make it look as if the head is talking. The illusion is made convincing via high-quality images and eye blinks, head movements and facial expressions, along with mouth movements that are synchronized with speech.

The Veepers playback engine is a proprietary ActiveX component around a half megabyte in size that is downloaded and installed when you load a Veepers presentation on your PC. The content is then downloaded as a stream by the ActiveX component, and the talking-head image is generated in real time on your PC.

Creating a Veepers presentation is easy. The big pain is getting a good image for the Veepers development environment (VDE)

### Jeepers! Veepers!

to work with successfully.

The VDE orchestrates a simple process: First you load a photograph and optionally select a background. The photo subject must have a neutral expression, no glasses and lips closed. The background should be a neutral gray.

We had to mess around a lot to get a background that the VDE could correctly identify. We'd like to be able to use an image editor to fill in the photo background with a specific color and then be able to select that color as the background in the VDE.

Next, you identify the eyes by centering blue and green dots over the left and right eyes respectively (the movable dot method is used in all the following steps). The next step is to set regions that identify the whole head and within that the area of the face. Then you set the corners of the eyes and mouth and the outline of the nose, then the outlines of the eyes and the line where the lips meet.

This is our second complaint: Once you finish the project you can't go back and tweak it.

You can load your Veeper into a browser window to test the results with sound samples. The results are eerie: Until it is to say something, the talking head floats over its background moving slightly as a real

head does, blinking occasionally.

Unless you take a lot of care defining the eye outlines, blinks can look weird and while the mouth movement is good, it sometimes looks a little unreal (we think the teeth that are synthesized when the

#### GEARHEADSCOREGARD

Product: Veepers, a system for creating talking heads on the Web.

Functionality.....B Elegance.....B Value for money......C Overall grade

Vendor: Pulse

www.pulse3d.com

lips open are too well-defined to look quite right).

To build a full Veepers presentation, you need to use the Pulse Audio Manager to process a voice recording. This builds the synchronization between what is being said and lip movements, and you also can use it to add head movements, blinks and expressions (happy, sad, frown and so on). Pulse Audio Manager can import a voice recording or record it directly.

The Audio Manager saves the processed file in a proprietary format that includes all the head movements and expressions along with the sound. To create a Veepers presentation to run off a CD or the Web, you use the Pulse Structor Utility to drop the Veeper into a Web page, define which audio file to use and specify actions. You also can drive the Veeper from JavaScript and even use Veepers text-to-speech services to create synthetic voices.

Finally, you can publish the content. If the content is to be shown commercially, there's a licensing system, and various deployment tests — such as checking the domain from which the content is downloaded — are done to ensure compliance.

Here's our final criticism: The output has an overly complex and unintuitive directory structure that makes integration with existing content too complex.

Overall, the results are impressive and the system is easy to use. Pulse executives say the next version will improve on the realism of face rendering and performance. Priced starting at \$50,000 with commercial playback billed by usage time, Veepers is pretty pricey.

Veepers gets an overall Gearhead rating of B- (see www.gibbs.com/gearhead/ for our new product rating system). Check out this column rendered with Veepers at the same address.

Headlines to gearhead@gibbs.com.



Quick takes on high-tech toys By Keith Shaw

#### Logitech launches new keyboards

Logitech recently released three new corded keyboards, aimed at budget-minded consumers, that offer many of the same features as Logitech's Cordless Freedom Optical series. The new keyboards include one-touch access to folders, including pictures, music and documents, multimedia control for playing digital music

files, CDs, DVDs and online media, and one-touch Internet access. Hot keys can be programmed to send a user directly to a Web site, launch a Web camera, access an instant-messaging program, check e-mail or perform a Web-based search.

The new keyboards include the Access Keyboard (\$15), which is designed for a PC only and has a PS/2 connection; the Internet Navigator (\$30), which is compatible with the PC and Apple's iMac; and the Elite Keyboard (\$50), a black unit that also is compatible with PCs and Macintoshes. Go to www.logitech.com for more details.

#### Netgear launches 802.11a wireless router

Netgear last week announced availability of its \$02.11a cable/DSL wireless broadband router. The it is 14 includes an \$02.11a access point with a four-port to 120M bit/sec switch. It uses the Atheros AR5000 wireless the chipset and can transmit data at speeds of up

to 72M bit/sec in its turbo (nonstandard) mode in the 5-GHz spectrum.

Netgear says the HR314 is ideal for businesses and for homes that have intensive bandwidth requirements, including home entertainment networks that stream audio and video. The device uses Netgear's Smart Wizard and Install Assistant applications, which can automatically detect a user's ISP connection and basic parame-

ters. Netgear says this can reduce the setup time to make installation easier and faster.

Other features include a Web-based interface, media access control address cloning, URL content filtering, e-mail alerts, a Dynamic Host Configuration Protocol server, PPP over Ethernet logon client support, port-forwarding controls and remote administration capability. It also will ship with antivirus and personal privacy PC software, Netgear says.

VPN pass-through and network address translation also are supported. The HR314 will cost \$555. Go to www.net gear.com for more information.

#### **Keyspan combines USB 2.0 with FireWire**

Keyspan has announced shipping of its USB2+FireWire Card, a combination PCl card that adds three external and one internal Universal Serial Bus (USB) 2.0 ports to any Macintosh or Windows PC that has an available PCl card slot. The card also will provide two external FireWire ports and one internal FireWire port on the card.

The USB 2.0 ports support data rates of up to 480M bit/sec, and FireWire supports up to 400M bit/sec. For Macintosh users, the USB 2.0 ports will only work at the USB 1.1 speeds, up to 12M bit/sec, until Apple provides support for USB 2.0, Keyspan says. The card costs \$100 and is available now at major retailers. Go to www. keyspan.com for more information.

#### Make anything go wireless

Linksys has a new wireless bridge that will take Ethernetenabled devices (such as PCs, print servers, workgroup switches and gaming consoles) and turn them into devices that can connect to an 802.11b wireless network.

Linksys says its Wireless Ethernet Bridge can let home networks and entertainment devices to swap and store music, games and video files without wires. Devices such as Microsoft's Xbox, SONICblue's ReplayTV and the TurtleBeach AudioTron digital music player will be able to connect to a wireless network through their built-in Ethernet cables. Instead of worrying about connecting these devices via cable, users can plug in the bridge.

The bridge can send data at speeds up to 11M bit/sec, and includes 64- and 128-bit wired equivalent privacy encryption features. Wireless networking can be done in both ad hoc (no access points needed) and infrastructure (with access points) mode. The bridge is available through Linksys' channels and costs about \$130. Go to www.linksys.com for more information.

Shaw can be reached at kshaw@nww.com.

Linksys' Ethernet Bridge will wirelessenable any device with an Ethernet port.







**EDITORIAL**John Dix

# AT&T looks to an automated future

espite AT&T's convulsions — the thrashing associated with the divestiture of business units, the imminent departure of its CEO to run one of those units and the sale of its lush headquarters — the company remains an industry powerhouse.

AT&T CTO and Labs President Hossein Eslambolchi says the company will emerge from the restructuring with a solid revenue base, less debt than the average long hauler and a good cash flow story. He's even more bullish on AT&T's ability to meet changing market demands.

Data volumes passed voice traffic in 1998, and at the end of 2001 AT&T had generated more data revenue than voice revenue, Eslambolchi says. Today, the AT&T network carries five times more data than voice traffic.

While voice revenue is still trailing off — 12% in the second quarter — data revenue is growing. Total IP revenue was up 26% in that quarter, packet services revenue was up 18%, and managed services revenue was up 20%.

Eslambolchi says AT&T is No. 2 in IP services now, up from a lowly sixth slot a few years ago, and he attributes that to scale being AT&T's friend — the greater the data demands, the better AT&T's vast resources look.

Roughly half of AT&T's backbone is OC-192, with the rest consisting of OC-48 trunks. "We're adding 50 to 100 OC-48s for private nets every two to three weeks, essentially tripling the size of the PSTN every two to three weeks," he says.

One of Eslambolchi's goals is to achieve what he calls the concept of one. He wants to integrate AT&T's various systems for things like ticketing, provisioning and maintenance, and back it all up with an intelligent global optical core based on MPLS with an IP control plane. He'll extend intelligence to the edge and use a multiservice aggregation device to support everything from frame and DSL to ATM.

That will let him pursue his other obsession, the concept of zero. The goal is to build intelligence into the DNA of the net and reduce the need for human intervention. He wants AT&T's network to be able to support self-provisioning and detect, prevent and heal problems by itself.

This will require building in more artificial intelligence, but Eslambolchi says 60% to 65% of AT&T network failures already go undetected by customers because the problems are predicted and solved before they become an issue.

He thinks he can address the other 30% to 35% by the end of the decade, but given the current industry turmoil that might be a stretch. Then again, other carriers are in even more trouble so that may aid AT&T's case.

— John Dix Editor in chief jdix@nww.com

# opinions!

#### Employees deserve praise

Because of the recent actions of a few rogue executives, WorldCom now has the ignominious characterization as the antichrist of the business world. While much of the public, media and political hostility is warranted, it's refreshing to read the more seasoned, balanced view on WorldCom provided by Johna Till Johnson's column "Don't forget about the good that WorldCom wasted" (www.nwfusion.com,DocFinder: 2023).As Johnson acknowledges, WorldCom's core remains a highly innovative, bestin-class company. The companies absorbed by WorldCom including UUNET, MFS and MCl are top of their class.

In a networked world still largely dominated by quasi-public monopolies, it's interesting to note that the companies WorldCom acquired share a similar trait: They all started with nothing. Through hard work, creativity and tough-nosed trench warfare, employees of all WorldCom divisions have taken the battle to the streets and today provide some of the most innovative, no-nonsense network services available. WorldCom did not inherit customers by default or public-utility proxy. There was no market share to leverage service price points, no unions sporting a "get it done next month" operating mentality, and no single copper line into homes and businesses to provide a self-perpetuating, cash-cow annuity.

Thanks to Johnson for casting some well-deserved accolades on 65,000 besieged WorldCom employees. Their contributions and dedication will surely eclipse the unconscionable actions of some three-card-monte hustlers.

Matthew Brownell Global account manager WorldCom Boston

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

#### **Security by obscurity**

Regarding Dave Kearns' column "Security by obscurity?" (DocFinder: 2024): Information security professionals use the phrase "security by obscurity" to describe the deprecated practice of depending upon the secrecy of an algorithm, instead of sound cryptography and secret keys, for the protection of data. If a weak algorithm is revealed, then it no longer protects any data. The phrase is used to describe attempts to maintain the security of software products by not disclosing their defects. The full disclosure, in human readable form, of the algorithms used in open source code makes the use of "security by obscurity" therein difficult, if not impossible. Compiling the source code before publishing it only makes the algorithm more difficult for people to read — it provides obscurity but not security. (For more information, see DocFinder: 2027.)

> Joe Konczal Computer scientist National Institute of Standards and Technology Gaithersburg, Md.

#### High on fiber

Regarding "Fiber to the home is broadband option" (DocFinder: 2025): I really like the idea of getting fiber access to my house. I have discussed it with the cable and telecom providers, and the issue of cost becomes prominent. This is the same reason that there is nobody rushing to provide competitive last-mile services. The return on investment of running fiber to the house is just not there. In addition, the cost of fiber-optic terminations at your house is several times that of the current copper devices. Maybe wireless is a more economically viable option.

Leslie Leong Network consultant Combat Networks Toronto



More online! www.nwfusion.com Find out what readers are saying about these and other topics. DocFinder: 2022

NOTE TO READERS: Please excuse the scumware which inserted itself into this cartoon



#### **VENTURE OVER THE HORIZON**

Robin Vasan

n almost any survey of network managers, network security tops the list of things they consider important because of the ongoing evolution of corporate networks. As corpora-

tions continue to move mission-critical applications to the Internet and open up their networks to suppliers, customers, partners and mobile workers, they expose themselves to greater security risks than they encountered when network traffic was predominately internal.

In a recent report on network security by Bear Stearns & Co., it is estimated that 80% or more of the traffic running across corporate LANs is external. At the same time, the modes of attack on networks have become more sophisticated. As corporations continue to move their mission-critical applications to the Internet, they will need a degree of reliability and privacy that the Internet never was designed to provide.

Today, security is being addressed at a very surface level, with network equipment put in place simply to allow or disallow certain types of protocol traffic. However, most network traffic uses the workhorse protocols of HTTP/HTTPS and Simple Mail Transfer Protocol, including rogue applications such as instant messaging and file sharing that are not supported by system administrators. Firewalls only look to establish that the traffic travels over a specific port and from/to known destinations. Deeper inspection of the application traffic is required.

Similarly, in the application security arena, putting better password protection on the front end only scratches the surface. Single sign-on is supposed to provide better security, but it is focused on making life eas-

## **Rethinking network security**

ier for users and password administrators. Applications and their associated users/roles need to be more centrally managed, along with the relevant access controls that begin to address business processes instead of just sign-on privileges.

In addition, certain layers of the infrastructure, such as databases, application servers and messaging/integration systems, need to share and properly utilize a set of user identities and related permissions. Maybe the move toward service-oriented architectures will help in the evolution. Overall, companies need better control of who uses their systems and how. The major infrastructure software players such as Microsoft, BEA Systems and Oracle are trying to address this, but need help from start-ups to innovate further and contribute to the solution.

The bottom line is that network managers need to think differently about security. Protection needs to move from the perimeter of the network closer to critical applications. Managers need to prioritize their applications and protect those applications where the cost of failure is substantial, and more pressure needs to be put on the applications vendors to make their products more secure.

It is impossible to achieve 100% security. But corporations need to be aware of the new technologies and architectures that can enable networks to achieve their primary goal of processing and communicating information while still providing the maximum level of security.

Vasan is a general partner with Mayfield, a venture capital firm in Menlo Park, Calif. He can be reached at rvasan@mayfield.com.

In a recent report . . . it is estimated that 80% or more of the traffic running across corporate LANs is external.



ON SECURITY
Winn Schwartau

y 11-year-old son has developed an intense interest in war driving — the fine art of discovering wireless networks as

you drive around in your car. In the Windows world, war driving merely requires a good wireless card, such as Orinoco, and a copy of Net-Stumbler, which can be downloaded for free.

As you drive up and down streets, NetStumbler will identify the hundreds of networks in businesses, government offices and homes. The screen will display the kind of wireless network access point, the manufacturer and the signal strength of the network you have detected. Most importantly, the network will broadcast its Service Set Identification (in Windows-speak, this is the name of the network's workgroup) and the unique network media access control (MAC) address.

As any accomplished war driver knows, a few keystrokes and a reboot would allow you to jump onto any open network that has not been secured with some combination of wired equivalent privacy (WEP) or MAC address filtering. People known as war chalkers even mark the streets and sides of buildings with war-driving symbols indicating the location of a wireless network and its security status.

When my son first wired up his war-driving computer, he was amazed — and frankly so was I. Sitting in the car in our driveway, we instantly found two home-based wireless networks; neither of them secure. We drove into town and found more than 70 networks, about one-third of them using WEP, the others hanging naked in the breeze.

The three fundamentals of information security are known as CIA—confidentiality, integrity and availability. War-driving attacks compromise the first two. If someone can access your private information, then your confidentiality has been breached. This person then can modify this information to your detriment, thus breaching your integrity.

Recently, a new suite of hacker tools have exposed even more potentially debilitating problems with the IEEE 802.1X wireless network standard, which defines Extensible Authentication Protocol (EAP) over LANs (EAPOL). These tools can be used to launch denial-of-service (DoS) attacks, compromising your network's availability.

First, the attacker spoofs the unauthenticated EAPOL logoff frames,

## **War-driving lessons**

logging the user off the access point. Then, the attacker renders the access point unavailable by flooding it with EAPOL start frames. The EAP identifier space becomes consumed, creating a DoS attack.

Premature EAP success packets can allow a rogue into a wireless session without proper mutual authentication. Broadcasting spoofed EAP failure packets can force a session to disconnect, resulting in still another DoS attack. Modifying EAP packets where neither integrity nor encryption is supported also can result in a successful DoS attack.

The tools for demonstrating wireless DoS capabilities are hitting the 'Net and should be part of anyone's wireless arsenal. What we have seen before is going to hit us again — except in the wireless world, identifying the perpetrator makes IP tracing seem like child's play. Imagine a few folks roaming around Wall Street with wireless disabling programs in their backpacks, invisible and virtually untrackable.

As with land-based LANs, one of the best ways to test the sanctity of your wireless networks is to use the latest attack tools against it before deployment. Gather a suite of attack tools, such as WEPCrack, Net-Stumbler and ApSniff. Make sure you have Orinoco and Prism wireless network cards. Test your own network for unknown access points and poor implementation of WEP and EAP. If you attempt to launch a DoS attack, make sure that nearby wireless networks will not be affected.

DoS attacks against the 802.1X environment are only the beginning. As new protocols and defenses are developed, new attacks will be commonplace. We are headed toward what the military calls electronic warfare where adversaries jam known frequency ranges to limit communications.

While wireless networks offer incredible convenience, we are not yet at the point where we can or should rely on them to provide mission-critical applications in an unshielded and potentially hostile environment. For more information, visit The Unofficial 802.11 Security Web Page (www.drizzle.com/~aboba/IEEE/).

Schwartau is president of Interpact, a security awareness consulting firm, and author of several books, including the recent Pearl Harbor Dot Com. He can be reached at winns@gte.net.

A few keystrokes and a reboot would allow you to jump onto any open network that has not been secured.



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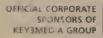
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# NETWIRLD-INTERCO

9/2/02 NetworkWorld 39

etworld+Interop 2002 Atlanta will open alongside Comdex 2002 Atlanta, marking Comdex's first appearance in the city since 1997. The idea is to give delegates a view of all the important developments that affect their businesses, as well as discuss the latest in Gigabit architectures, WAN strategies and convergence issues. Visitors also will be able hear about Web services, and IT/business alignment and strategies.

Hot topics this year include wireless networks, storage and security. There will be a two-day E-Mobility conference that will address wireless LANs and wireless applications, while a security conference will cover issues such as reaching beyond intrusion detection and securing a mobile environment.

Here's our look at some of the activities you shouldn't miss.

network and helps you devise a three-part defense plan: choosing reconnaissance tools, assessing your network vulnerability and implementing counter measures.

The Pine Mountain Group's Executive "Netanalyst" Bill Alderson, Managing Netanalyst Mike Pennacchi and Senior Netanalyst Dan Strohl will talk about the latest techniques in network analysis and forensics. Issues examined will include network architecture, documentation, change and recovery plans, and network intelligence. There also will be case studies demonstrating network performance analysis methods and application response.

#### **Breakthrough technologies**

#### 11 a.m. to noon

Some technologies come and go, while others become institutions. How do you keep up with the new inventions that come on the scene, and how do you know which are worth keeping an eye on? This session will feature Johna Till Johnson, CTO of Greenwich Technology Partners and a *Network World* columnist; Rajiv Laroia, founder and CTO of Flarion Technologies; and Mun Yeun Leong, CTO of Avaya. Laroia will describe a new mobile broadband technology called flash-Orthogonal Frequency Division Multiplexing, an IP-friendly and packetswitched wireless broadband technology that connects existing wired companies with the wireless world.

#### TUESDAY SEPT 10

#### DIRKED # HI STAN

## The global technology — keynote by Bobby Johnson, GEO, Foundry Networks

#### Noon to 1 p.m.

"Ethernet has come to dominate the market because it is superior in terms of performance and cost when compared with ATM or FDDI, and is easier to use as well," says Bobby Johnson, CEO of Foundry. "The same can also be said of the difference between SONET and



**Bobby Johnson** 

10G Ethernet. The latter has strong cost performance, and all the ease of use of Ethernet. You can also use IP over 10G Ethernet and it is especially important to note that 10G Ethernet is better than OC-192 when it comes to cost. Ten G Ethernet achieves speeds similar to SONET for about one-fifth the cost," he adds.

"The next advance in speed will be 40 Gigabit or 100 Gigabit Ethernet.

They are both in the research and development phases," Johnson says. "We are producing prototypes to verify and conduct further research into cost, performance, port density and transmission range."

## Web services: The expert perspective on delivering the goods

10:15 a.m. to 12:30 p.m.

We've all heard the nype surrounding Web services; now what we want to know is what can Web services do for our businesses and what are the best practices in implementing Web services technologies. John

McConnell, principal analyst at McConnell Associates, and his guest panelists aim to look at the performance issues of Web services and explain how better Web application design should lead to infractruc ture savings. Panelists are Alistair Croll, CEO of Coradiant John Morency, vice president of technology services at Sterling Research; Rhodes Rumsey, principal of Plural; Jasmine Noel, director of systems and applications management at Hurwitz Group; and Peter Sevcik, president of NetForecast.

#### MONDAY SEPT 9

#### DIAKED # HI : DAN

#### **VPN Day 1**

#### 8:30 a.m. to 4:30 p.m.

How do you provide remote employees access to corporate data in a secure way without incurring sky-high service charges? VPNs are becoming one of the most important access methods in many organizations as the number of remote workers increase. And now, emerging security technologies and public-key infrastructure (PKI) let businesses collaborate through secure extranets.

This two-day conference, which starts Monday, will delve into VPN technologies and standards through technology presentations, case studies and demonstrations.

Led by independent consultants Frederick Avolio, principal of Avolio Consulting, and David Piscitello, president of Core Competence, the speakers will discuss the different technologies and standards that could be used to create VPNs, such as PKI, Layer 2 Tunneling Protocol, Multi-protocol Label Switching (MPLS), IP Security (IPSec), Internet Key Exchange and Secure Shell.

#### Network forensics day

8:15 a.m. to 7 p.m.

Do you know what your network looks like from a hacker's perspective? This daylong session provides an opportunity to learn what hackers might see as the weak points on your



#### Best practices in implementing voice over IP

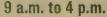
2 to 3 p.m.

In Ridley, Coca-Cola Enterprises' sen or technical a chitect, planning and technology, will share the prosand cons of his company's initial voice-over-IP (VoIP) deployments. What are the ingredients for a successful Vo P implementation, and what does it take to deploy it in a large corporation? Susan Knott, global network architect at PricewaterhouseCoopers, also will present.

#### WEDNESDAY SEPT 11

#### 司田後り割用書かれ

**Network storage** strategies



Described as "bringing sanity" to the subject of networked storage, this daylong conference will examine how network-attached storage, storage-area networks and the emerging NAS/SAN hybrid could be deployed cost-effectively. With sessions titled "Extraordinary popular delusions and the madness of SANs," and "The Holy Grail of networked storage management," the conference should be informative and entertaining.

Attendees should come away from this conference, led by independent consultant and author Jon William Toigo, with a knowledge of the capabilities and limitations of networked storage, plus how the technology might best be deployed in your organization.

#### MPLS: The good, the bad and the ugly 11:30 a.m. to 12:30 p.m.

Billed by Network World Global Test Alliance as the protocol that could lead to less-expensive and faster WAN connections, MPLS is being pushed into service providers' networks so that network executives will no

#### ILabs to hit on wireless security, iSCSI and MPLS

Network World is the sponsor of the InteropNet Labs (iLabs), N+I's live test bed designed to give attendees hands-on, unbiased insight into the state of emerging technologies. ILabs is located on the show floor, open to all attendees, and runs during exhibition hours. A team of volunteer network engineers, including Network World Test Alliance partner Joel Snyder of Opus One, will conduct these testing demonstrations. ILabs Atlanta will focus on wireless LAN Security where engineers will test 802.1X, Extensible Authentication Protocol and IPSec interoperability; IP storage networking based on iSCSI technology; and MPLS where testers will implement interoperable point-to-multipoint Layer 2 VPNs.

For a schedule of free classes, go to www.ilabs. interop.net.

longer have to build large WAN infrastructures. This session describes MPLS technology today and reports on enhancements anticipated during the next year. Led by Steven Taylor, president of Webtorials and co-author of Network World's twice-weekly WAN newsletters, the speakers include Irwin Lazar, practice manager at Burton Group: Tim Halpern, product director of frame relay and ATM at AT&T; and Barry Tishgart, director of product management at Sprint.

#### **VPNs: Matching needs to speeds and feeds** 3:30 to 4:15 p.m.

If you can't attend the special VPN days Monday and Tuesday, you might want to sit in on this session. John Doyle, director of intelligent Internet product marketing at Nortel will give an overview of the available VPN options on the market. He will aim to unravel the confusing choices — IP VPNs, VPNs with or without MPLS, and frame relay VPNs — and talk about the security and convergence issues surrounding this remote access technology.



#### More online!

Head online for more N+1 sessions, keynotes and events vou shouldn't miss.

DocFinder: 2030













#### In other words

A glossary of DoS terms

**ACK floods** — An attack that sends a large number of TCP packets with the ACK flag set to a target.

#### Denial of service (DoS)

launched against a target vents valid, authorized users

Distributed denial of service — When many systems launch a DoS attack against one specified target.

Fraggle — A DoS attack that sends User Datagram Protocol (UDP) Internet Control Messaging Protocol (ICMP) echo packets to network broadcast addresses.

ICMP flood — An attack that sends a large number of ICMP packets to a target.

Jolt2 — A DoS attack created by sending a large numets to a target. The target system will use 100% of its

Land — A DoS attack, with a spoofed source IP address, IP address/port, confusing the system and causing the TCP/IP stack to lock.

Mstream — A client/server distributed DoS tool.

Naptha — A new breed of sophisticated DoS attacks work connections on a target system. Naptha starts with a send the corresponding ACK, keeping the TCP/IP session open even longer on the target system.

Opentear — A DoS attack that sends fragmented UDP packets to random ports on will use 100% of its resources

Pimp2 — A DoS attack that

# Denial of service:

Test shows there are several varied, viable options that help defend your network against attacks.

#### **■ BY MANDY ANDRESS, NETWORK WORLD GLOBAL TEST ALLIANCE**

There's more than one way to skin a denial-of-service attack, but first you've got to catch it. Two years after the well publicized attacks on Yahoo, eBay and CNN, DoS attacks are still very prevalent — they just aren't discussed. The advent of new attack technologies, such as Naptha and Reflective DoS attacks, are making the process of protecting networks even more difficult.

In a perfect world, your ISP would detect and deal with the growing number of these attacks on its end. But because many ISPs do not want to take on the added burden and legal responsibility to provide, or claim to provide DoS protection, you'll most likely have to deal with DoS attacks — whether they are randomized DoS, general distributed DoS or reflective distributed DoS — on your own.

On the market today is a range of vendors providing DoS attack-detection and mitigation products. How each product approaches the problem runs the gamut. Signature vs. anomaly detection. Inline vs. network tap. Active vs. passive. Who does what and how does it all work?





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Winning through server consolidation. Winnebago Industries lives by its e-mail system. By consolidating its functions onto one IBM @server zSeries running Linux, the company created an industrial-strength e-mail system, and saved on software licensing fees in the process. For a complimentary guide on server consolidation, visit ibm.com/eserver/winnebago

@business is the game. Play to win."

#### Paridoni ed DDoS attack

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RC8 — A DOS FOR THAT HOUSE A HARRING WILLIAM P. DACKETS.

#### Reflective/DDoS attack

I have a spoofed source IP of the real attack target. The which a spoofed source IP of the real attack target. The web site replies to this large number of SYN requests, sending its responses to the spoofed "target" IP address. To the target, it looks like the large Web site is launching a DoS attack against them.

Stacheldracht — A distributed DoS attack tool that encrypts communication between the attacker and Stacheldracht master servers. It also provides automatic updates of infected systems.

**SYN floods** — A type of DoS attack where a large number of TCP SYN packets (the first packet in a TCP/IP spoofed source IP addresses, are sent to a target. The target system replies with the corresponding ACK packet of the TCP/IP threesource IP address of the initial packet was spoofed, the target never will receive the final packet, leaving it to hold TCP/IP sessions open until They time out. A SYN flood causes so many TCP/IP open essions that the system becomes overwhelmed and cannot handle any more net-

Synk4 — A SYN flood DoS

argas — A Dos attack
sends malformed

Fig. ckets to a target
ausing it to conof its resources,
crylin stack lock.
of packet malforand of

#### DoS continued from page 41

We invited a group of vendors into our lab to help discern the advantages and disadvantages of each approach. Asta Networks, Captus Networks, CS3, Lancope, Mazu Networks, Radware and Webscreen agreed to participate in our review. App-Safe, Arbor Networks, CacheFlow, Check Point Software, Extreme Networks, Flood-Guard, Internet Security Systems, IntruVert, NetScreen, Reactive Network Solutions, Recourse Technologies, Riverhead and TopLayer Networks declined.

Our tests determined that these products all work about the same in detecting attacks, with most of the products detecting 95% of the attacks we launched (see online chart at www. nwfusion.com, DocFinder: 2021).The deciding factor lies in the mitigation techniques available to you. How concerned are you that valid traffic still needs to pass? How much control do you want over the process? What type of reports and how much data do you want to have available to you? Once you have answered those questions, you quickly will be able to narrow down the top choices for your environment.

#### **In-line products**

#### **Captus CaptIO and CaptCC**



Captus provides the most granular product we evaluated, but it could be more cohesive and easier to administer. Captus provides two devices: CaptlO is the inline DoS device, and CaptCC is the centralized management appliance that can control multiple CaptlO devices.

You can configure and manage CaptlO through a built-in Web graphical user interface, but CaptCC provides for multiple devices and some advanced GUl functionality. Overall, only basic management functionality is available through either GUl — most management is performed via the command line.

Captus representatives installed their product in our test lab. The first installation was a disaster, with the CaptlO and CaptCC devices having problems that rendered them useless. A second installation attempt with brand new boxes went smoothly. As recommended by Captus, CaptlO and the CaptCC resided on a completely different subnet than the monitored networks.

Captus products use a technology called Traffic Limiting Intrusion Detection System (TLIDS), which are defined as rules, similar to firewall rules. TLIDS rules can be defined on any of the device's interfaces. In reality, CaptlO functions much like another firewall on your net-

work. You can define what protocols can be allowed through the device, what traffic levels you should expect and what SYN buckets to manage SYN floods. As with any baseline-based product, its effectiveness depends on how accurately your thresholds are set. Captus does not provide a threshold analyzer, but it does provide rate throttling, slowing the connection rate, opening bandwidth to let legitimate connections pass.

Captus administration is a bit frustrating and can seem a bit redundant when working with your firewall. If you configure CaptlO as recommended, blocking all ports except those that are allowed, you will configure any changes in at least two places — your gateway firewall and CaptlO/CC. While it provides an excellent defense-in-depth architecture, TLIDS rules could be a bit easier to configure.

CaptlO was very effective at identifying and handling our DoS attacks when the TLIDS rules were defined correctly. Once you understand the TLIDS syntax and options, you can have very granular control over your network traffic. When an attack is detected, CaptlO takes action as defined in the appropriate TLIDS rule and reports information to a syslog server.

Captus reports are based on syslog data and use a Crystal Reports viewer to help analyze the syslog data and render it into a user-friendly report. In addition to an improved GUI, we would like to see an improved reporting infrastructure.

Like most of these DoS devices, Captus runs on Linux and upgrades are as easy to install as any traditional Red Hat RPM application. A vulnerability

assessment scan of the system showed OpenSSH vulnerabilities, meaning that an attacker potentially could compromise it.

#### Bottom line

#### Captus Networks CaptIO and CaptCC

www.captusnetworks.com

Category: Inline

configuration options.

Cost: CaptIO, \$15,000; CaptCC, \$8,500
Advantage: Most flexible and granular

**Disadvantages:** First install attempt failed; poor reporting; poor GUI.

**Best suited for:** Organization that wants complete control over all configuration aspects of the device.

#### **Mazu Networks Enforcer 5.2**



Mazu's Enforcer is an adaptive distributed DoS product, watching and evaluating network traffic to determine what is valid and what is malicious. The Enforcer sits inline on your network and basically has three network interfaces. Two are used for traffic monitoring (one sits on the "Internet" side and one sits on the "internal network" side). These interfaces

#### How we did it

assive monitoring devices were connected to a spanning port on the Cisco Catalyst 3500 switch on our target network. Inline devices were placed between our attacker and target networks, in front of the target network's gateway firewall. The target network consisted of a Red Hat 7.2 system running Apache, Sendmail, BIND and Secure Shell, and a Windows 2000 SP2 Server running Internet Information Server. The attack network consisted of a Red Hat Linux 7.2 system and a Win 2000 Professional SP2 system.

After initial setup on the network, we ran 48 hours of valid traffic, consisting of HTTP requests, DNS requests, mail requests and SSH connections to define an adequate baseline.

We launched a variety of attacks against the target network, including TFN SYN flood, Stacheldracht, Fragger, Mstream, Jolt2, Opentear, RC8, Pimp2, Land, Targa3, Naptha, and completely randomized source IP/TCP, User Datagram Protocol (UDP), and Internet Control Messaging Protocol SYN and ACK floods. We launched attacks in phases. Some were short bursts, others were sustained attacks lasting several hours, and others included multiple attacks launched at one time.

We also requested a 2M-byte file located on the Apache server several thousand times in rapid success to see if a sudden increase in valid connection attempts were identified as malicious. To test identification of outbound denial-of-service (DoS) attacks, we installed Tribe Flood Network 2000 on the test network and launched an attack against the systems on our attacker network.

To evaluate the security of the DoS device, we launched attacks against the device itself and ran Internet Security Systems' Internet Scanner against its IP addresses to identify any known vulnerabilities. Because most devices run on the Linux operating system, vulnerabilities in Linux could lead to a compromise of the DoS device.

- Mandy Andress

operate in promiscuous mode to pick up and analyze all network traffic. It then has a third interface specifically for management access to the device.

Enforcer determines its baseline of "normal" traffic by analyzing network traffic for a period of time as set by the user, specifically looking at packet characteristics, such as time to live, payload and hashes. The longer the amount of time the network is analyzed, the more accurate your baseline will be. Enforcer analyzes traffic and alerts administrators when traffic that exceeds the baseline thresholds set by the user. Enforcer will recommend filters to be installed on the device (with the administrator's approval) to remove or mitigate the identified attack. These filters take an all-ornothing approach, though, and easily can filter out valid user traffic. However, you can define trusted traffic, and these packets never will get dropped. Additionally, when running in passive mode, Enforcer will just recommend access control lists that should be installed on your routers.

Mazu usually installs Enforcer, installing the product in our test lab. Installation is straightforward, configuring the inline promiscuous interfaces and management connection. Once Enforcer is up and running, it needs to monitor network traffic to configure a baseline that best

fits your network. An excellent feature in the Enforcer is the Threshold Advisor, a wizard that helps you determine what your baseline thresholds should be set at based on a period of traffic analysis you define. The Enforcer then automatically can configure its thresholds. Enforcer administrators also can change any of these values manually.

For SYN flood attacks, you define separately your SYN queue parameters, which determines how many SYN requests can come in and sit there without receiving responses. As the queue fills, older open connections are dropped.

The main page on Enforcer's administration interface contains an overview of what is happening on the network through a combination of interface packet statistics and a graph of traffic types, which is completely configurable. We had trouble getting the graph to display attacks as they occurred and discovered timing is an issue in the graphing portion of the product. Traffic analysis and counts occur as the packet enters the interface. The graph is created based on the timestamp of the packet. If timestamps are off, the packets will not be displayed properly, which is what we encountered.

During our testing, Enforcer notified us of any activity that exceeded our defined thresholds. On a completely random TCP

flood, we enabled the recommended filter and couldn't access our test Web site until we removed the filter. Like many of the distributed DoS products, Enforcer runs on Linux and a vulnerability assessment scan of its interfaces showed Secure Shell vulnerabilities on the management interface. Enforcer is good at identifying high-level traffic flows that exceed defined thresholds, but it will not solve all your problems. Enforcer picked up a sync4 attack against a system, but by then it was too late — the target system was already unresponsive, and the Web server needed to be restarted to function properly.

#### Bottom line

#### Mazu Networks Enforcer 5.2 www.mazunetworks.com/ index.html

Category: Inline device **Cost:** Starts at \$32,000

**Advantage:** Threshold Analyzer Wizard guides users well.

**Disadvantages:** All-or-nothing filters that can block valid traffic; reliance on Network Time Protocol timing synchronization can lead to reporting glitches.

Best suited for: Organization looking for inline device that does not require accurate attack blocking on spoofed source IP attacks to let legitimate traffic pass.

#### Radware FireProof Application Switch II

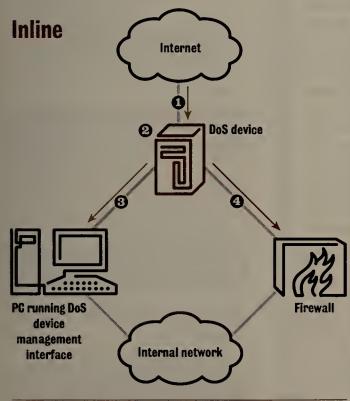


The Radware Application Switch can perform a variety of functions, including firewall load balancing, network switching, providing application security protection and protecting networks from DoS attacks. For our testing, we configured the Application Switch to run its DoS Shield and Application Security applications independently — it was not acting as any other type of device.

The Application Switch is a signaturebased product, comparing a sample of network traffic (based on administratordefined parameters) with a list of preconfigured attacks. This device is better than the other devices tested at catching those one-packet attacks that can take down a system and will not necessarily be picked up by an anomaly- or baseline-based product. When an attack is detected, the Application Switch takes action, as defined by the administrator, which includes reporting or blocking the offending packets. Our testing found this option

#### **Detecting DoS** attacks before they disable your network

In our Issue-based test of products that help network professionals detect and stop denial-of-service attacks, we looked at three basic product configurations: those that sit inline between your firewall and the Internet, those that use a network tap to pull traffic from the network and those that sit behind the firewall on your internal network.



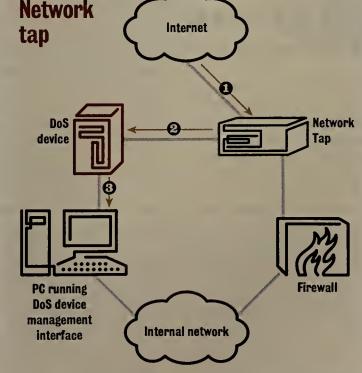
All network
Praffic is traffic flows analyzed for attacks. through device.

Advantages: Catches all

traffic. Provides a mechanism

to act on problem traffic easily.

- Any deviations
  Some of the inor identified attacks generate alerts that are sent to the appropriate
  - line devices take immediate action, blocking traffic identified as administrator. malicious.
  - **Supporting product:** Mazu, Radware, Captus, Webscreen.



Network tap listens on the network and takes samples of traffic.

Advantages: Network tap

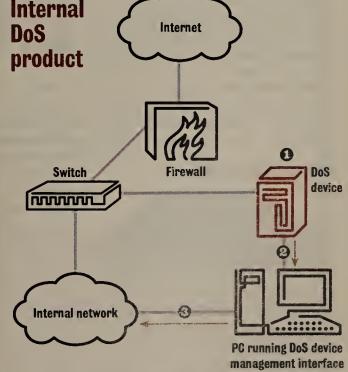
devices do not introduce a

point of failure on the network.

- 2 DoS device pulls data from network tap, analyzing it for potential attacks or characteristics that do not adhere to a defined baseline.
  - just generate alerts and recommend solutions such as ACL filters on how to best deal with the identified issue.

These devices usually

Supporting product: Asta, Lancope.



- This device focuses on monitoring internal network traffic.
- Device uses its own algorithm to determine malicious from valid traffic.
- Product will block malicious traffic.

Advantages: Quick detection of internal machines acting as DoS zombies and launching DoS attacks on unsuspecting targets.

Supporting product:

to be accessful Malicious traffic was blocked but valid traffic was allowed to pass This device did not generate any alerts on our outbound DoS attack because at only appears to analyze inbound connections from the external network. It also did not identify the sudden, rapid increase in Web traffic as anomalous

Installation was very simple. We configured an administrative port in addition to the network interfaces monitoring network traffic. Management occurs through a local Web server or a Java management console. After enabling the Application Switch and DoS Shield, we set application aging protocols, which are useful for dropping "old" connections. We also set the tracking time and threshold limit for SYN attacks, TCP port scan, User Datagram Protocol floods, ping floods and UDP port scans.

A vulnerability assessment scan of the management port showed a Web server chunked encoding vulnerability — a new type of Web server vulnerability released a few weeks ago. With this vulnerability, an attacker could disable, compromise or change configuration of the device.

Because Radware is not installed on a base Linux server, you must wait for the vendor to release a new firmware update to fix security issues. Additionally, new attack signatures are updated only through new firmware releases. Firmware updates are released every few months and they are very easy to install.

#### Bottom line

#### Radware FireProof Application Switch II

www.radware.com

Category: Inline

Cost: \$28,000

**Advantage:** Catches single packet attacks and other known attack types.

**Disadvantage:** Updates available only via new firmware.

**Best suited for:** Organization looking for a signature-based product or looking to combine DoS protection with load balancing.

#### Webscreen WS100



The WS100 is an inline, passive device with a separate management interface. The device acts as a bridge between networks, with the passive interfaces not even having IP stacks bound to them. This helps protect the DoS device from being attacked itself.

Webscreen uses heuristics to identify anomalous or malicious traffic and drops traffic as necessary. Webscreen's Charm technology analyzes network traffic for behavioral characteristics and decides which traffic is malicious and which traffic is valid.

Installation and setup was simple. We configured it through its Web-based man-

agement program, defining inbound TCP ports, inbound UDP ports, inbound Internet Control Message Protocol types and IP protocols. We also defined server parameters, such as TCP backlog per port, maximum connections and total TCP backlog. Webscreen's products are optimized to protect Web servers, so much of the configuration information focuses on the specific characteristics of your Web server farm.

In our testing, the WS100 was the most accurate at identifying attacks and mitigating attack traffic to let valid traffic pass. Its reporting infrastructure could be improved to provide more detailed information and graphs. Currently, it only provides text-based statistical displays. One interesting piece of information the WS100 does provide is a list of the top-20 offending IP addresses that attack your network.

#### Bottom line

#### Webscreen WS100

www.webscreen-technology.com

Category: Inline

**Cost:** Starts at \$23,000

**Advantages:** Almost invisible on the network; best overall performance; Charm technology helps identify malicious traffic.

**Disadvantage:** No graphs in reporting. **Best suited for:** Optimized to protect Web server farms.

#### **Network tap products**

#### Asta Networks Vantage System 2.0



The Vantage System is a network-monitoring appliance that hangs off a switch or network tap on the network and pulls traffic statistics from Cisco, Foundry Networks or Juniper Networks gear on your network. You also can place the device on a spanning port on a switch to gather traffic data. It collects data in real time, but there is a slight delay as it is sent to the device and analyzed. The system continuously analyzes network traffic to determine characteristics and will alert administrators when traffic occurs outside of a defined threshold. Administrators define network policies to help the product determine valid traffic levels.

When an attack is identified, the Vantage System will start classifying the data, recording and reporting details of the attack to administrators. The Vantage System also will provide access control lists and recommendations on how to mitigate the effects of the attack. The system does not provide any automatic filter or attack mitigation options.

Installation and configuration are easy with this device. We connected the appliance to a spanning port we configured

on our Cisco Catalyst 3500 switch and were up and running in no time. System management occurs through a Webbased console.

Of all the products we evaluated, the reporting capabilities in the Vantage System were the best. The level of detail and granularity about the packets and statistics analyzing the system were unmatched. We could see every detail of the malicious traffic, down to the individual packets involved.

On the downside, the Vantage System was slower to alert us to attacks, taking a good minute or two to categorize the traffic.

The Vantage System also runs on a Linux-based server appliance, so you need to be conscious of attacks that could be launched directly against the system. A vulnerability assessment scan shows OpenSSH vulnerabilities.

#### Bottom line

#### Asta Networks Vantage System 2.0 www.astanetworks.com

Category: Network tap Cost: Starts at \$8,000.

**Advantage:** Very detailed reporting information.

**Disadvantage:** No autofilter option; slow identifying attacks.

**Best suited for:** Organization looking for an alert-only device.

#### **Lancope StealthWatch M100**



The StealthWatch M100 is another passive monitoring product, marketed as an intrusion-detection system (IDS), that detects attacks based on defined thresholds and baselines. StealthWatch uses a Concern Index and Services Profiler, algorithms and security logic Lancope developed to determine attack traffic. lt builds a profile of a suspected attack and alerts administrators only when the Concern Index of the suspicious activity reaches the administrator-defined threshold. When an attack is identified, the device can take numerous actions, including sending e-mails and pages, and blocking the offending connections.

StealthWatch also watches traffic at a more granular level than some of the other products. The Services Profile is mapped down to an IP address, whereas other products just analyze the big-picture network traffic.

Setup and installation of StealthWatch went very well. After calling Lancope to obtain the administrator password (its standard practice), we logged on to the system console and configured the IP address of the management connection. We then connected to the system through the Web-based GUI to complete the configuration process. We also configured the device to run in build and report mode, which means that any new services identified on the network are

added to the profile and reported to the administrator.

One feature we liked was its ability to automatically e-mail daily reports to defined administrators. With this feature, administrators can have the previous day's reports waiting in their inboxes the next morning instead of having to remember to log on to the system and check status or rely on alerts when attacks occurs. Administrators also can set specific inbound IP addresses for a watch list. Any time traffic is detected from an address on the watch list, a special report is generated. You can configure the reverse, defining addresses that cannot trigger an alarm, regardless of what traffic it is sending or receiving.

One problem with StealthWatch is that its Service Profiles are defined by IP address. If your network uses Dynamic Host Configuration Protocol (DHCP), your Service Profiles will not be accurate. In this scenario, Lancope recommends defining Service Profiles by IP address ranges equivalent to your DHCP scope.

We first defined our Concern Index levels for inside and outside hosts. We set these levels at the midrange level. Setting them too high potentially will cause the device to miss attacks, while setting it too low creates a large number of false positives. In our testing, Stealth-Watch performed very well, identifying and mitigating all attacks we launched during our test.

As with the majority of the rest of these products, StealthWatch runs on Linux. A vulnerability-assessment scan showed OpenSSH vulnerabilities.

#### Bottom line

#### Lancope StealthWatch M100 www.lancope.com

Category: Network tap

**Cost:** \$20,000

**Advantages:** Anomaly-based, but catches nonflood attacks; Concern Index and Services Profile to identify malicious traffic

**Disadvantage:** Has problems working in DHCP networks.

**Best suited for:** Organizations looking for a combined IDS and DoS product.

#### **Internal DoS product**

#### CS3 MANANet Reverse Firewall Version 1.10



The MANANet Reverse Firewall takes a different approach, focusing on preventing DoS attacks from leaving your network.

To achieve this, the Reverse Firewall implements two critical functions: fair service to visible sources and rate limiting of unexpected packets. In terms of fair service to visible resources, the

reverse firewall focuses on additional path information that has been added to the packet, such as the packet's source data. Rate limiting of unexpected packets focuses on restricting the amount of bandwidth available to traffic floods those packets that are sent to the target but will never send responses.

CS3 also pushes router "cooperability" — network routers working together to identify distributed DoS traffic and prevent it from causing damage. MANANet is designed to identify other routers working in this cooperative, accepting all traffic from them as trusted packets. CS3 refers to this as the Path Enhanced IP Configuration.

As with most of the other devices, MANANet Reverse Firewall runs on Linux, but it also uses iptables/netfilter firewall functionality. CS3 suggests users replace their existing firewalls with MANANet by just using the iptables functionality. The Reverse Firewall also can be used to protect internal network segments, not just your Internet connection.

Installation and setup was difficult and complex. Initial setup required a floppy disk from CS3 with data specific to the appliance you buy. The data on this floppy disk must be adequately backed up and protected because your device will not work without it. Once you have completed the setup process, you can manage the device through a Web-based GUL

Using the GUI, we set traffic rate limits and established how we wanted to be notified of attacks, via e-mail in our case. We also set how often we wanted the system to check to see if an attack was occurring, as these are not automatic. You must configure the notification engine to check every X minutes and advise it what threshold of dropped packets you need to see before an alert is sent.

The MANAnet Reverse Firewall performed well in our tests, catching all of

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our attacks. Being the lowest priced product of the group, its price/performance ratio is high, but the device lacked detailed, in-depth reporting and alerting functionality.

Bottom line **CS3 MANAnet Reverse Firewall** Version 1.10

www.cs3-inc.com

Category: Works inline or tap Cost: \$4,000

Advantages: Takes a different approach with cooperative routing.

Disadvantage: Most difficult

Best suited for: Internal network subnets.

Andress is principal of ArcSec, a security consulting firm in the Bay Area Sh has written several books, including Surviving Security, and is active on the conference circuit, speaking at Black Hat, NetWorld+ Interop and numerous other conferences. She can be reached at mandy@arcsec.com.



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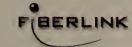
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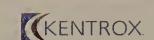
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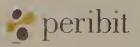


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# Staffing for convergence

Joining voice and data pros calls for thought about how you'll ramp up staff and divvy up duties.

**■** BY PHIL HOCHMUTH

Converging voice and data onto one network can be a daunting task for any organization, but merging and molding IT professionals to handle voice and data duties successfully can be as challenging as the technology itself.

As IT executives look to convergence to reduce costs and support new applications, they also need to consider the staffing implications. Workers in the voice and data departments have different skills and experience, and bringing them together on a single team will require that they learn some new technologies.

On the campus of Delaware State University in Dover, a new phone system called for training and changes to the school's help desk system. The school recently installed a Siemens HiCom 300 PBX and two HiPath 3000 IP PBXs to run voice and data at a satellite campus 50 miles away. Digital handsets attached to the HiCom PBX connect users in the main administrative office buildings.

The dorms and remote campus buildings have about 500 IP handsets linked to the HiPath IP PBXs. Charles Fletcher, assistant provost for technology and information systems at the school, kept a mix of IP and circuit-switched phones so he wouldn't be completely reliant on one voice technology.

Before the Siemens installation, the university used a Centrex system from Verizon. While bringing the phone system in-house was a big project on its own, the convergence aspect added another wrinkle to staff management.

"Everyone knows IP in my operation," Fletcher says. "The area that has been a challenge is to get IP people used to running voice." Overall, his staff members accepted the new telecom responsibilities, he says, and were quick studies in the technology

While Fletcher calls his network well-managed, he concedes that network outages occasionally take time to be resolved. With voice in the equation, that had to change. "The new philosophy we put in was that if there is a phone issue, that has to be taken care of much more quickly than a data issue, such as a crashed laptop," he says.

Fletcher devised a new system for reporting technical problems via e-mail and phone, and prioritizing them. The staffer who previously managed the Centrex system assumed responsibility for the PBX. That person got training on the Siemens IP and circuit-switched PBXs, while the rest of the group received more basic training on trouble-shooting and administration. "The extensive training we put our staff through I think is what will pay off in the long run," Fletcher says.

In Daytona Beach, Fla., one self-proclaimed "old IT dog" did most of the teaching when the city moved to a converged voice/data IP network.

The city hired five IT workers to install and manage two IP-enabled Meridian PBXs from Nortel to replace a Centrex system. Nortel Business Communications Manager IP PBXs let workers use IP phones to connect to the main Meridian systems over a Gigabit Ethernet metropolitan-area network. Back in the larger offices, digital Nortel handsets connect directly to the PBX.

Gene McWilliams, IS director for the city, says that instilling the right philosophy about voice from the pro-

#### Avoid convergence clash

Users and experts say these common-sense guidelines are important for ensuring a smooth managerial transition when rolling out a converged network.

#### Philosophy:

Instilling the "one network" concept is important when starting an IP telephony project. It is especially critical to impart the idea that the stakes are raised in terms of network reliability and response to outages and problems when voice traffic is ported to IP.

#### Training:

Cross-training workers who come from telecom-only or datacom-only jobs is the most crucial part of a convergence project. While it is not necessary to make the "phone guy" an IP networking expert, and vice versa for LAN/WAN folks, cross-training will ensure everyone is on the same page.

#### Organization:

It might be necessary to restructure reporting schemes and processes for dealing with support and maintenance of the network. Best practices from both telecom and datacom camps should be analyzed and considered without any one method or philosophy taking over the operation.

ject's inception was key. Although McWilliams has worked with voice and data for more than 20 years, some of his staff members in their mid-thirties came from the "point-and-click" generation of Windows PCs. "The thing is, I never told them there was a difference — data is data, transmission is transmission is our philosophy," he says.

McWilliams sent staff for training on the Nortel PBXs, and he helped reduce the learning curve with his own experience with Nortel switches. His goal in picking his staff of 17 was to hire workers who could adapt and handle a diverse set of technologies. "I didn't take telecom people and try to make them into datacom staff," he says. "I really didn't take data people and cram phone technology down their throat either. I said this is a new road; this is a converged road," and everyone will have to have converged skills.

At *The Seattle Times*, an Avaya S8700 IP PBX and several hundred IP telephones were installed recently as the newspaper moves to convert each of its 1,000 or so phones to IP phones by the middle of next year. Eventually, the entire phone system will ride on a net-

work of Cisco switches in the backbone, Nortel routers at the edge and Avaya switches at the desktop.

Thomas Dunkerley, IT communications manager for the newspaper, managed the former Avaya PBX and oversaw the migration from a circuit-switched PBX to an IP-based call server. Paul DeWees, senior network systems administrator, handled the recent upgrade of the paper's Cisco switched data network. So was head-butting inevitable?

No, Dunkerley and DeWees say. The two work as partners in overseeing the new network, whereas in the past, their paths were less likely to cross. Dunkerley and DeWees share project status updates and technical information.

Convergence also has changed the day-to-day tasks and routines of managers and their staff: Dunkerley, formerly a "PBX guy," now keeps track of IP network utilization, while DeWees has become involved in testing the quality of IP voice conversations over the LAN and WAN.

Dunkerley and DeWees say they've been enlightened a bit about the requirements of overseeing data and telecommanagement.



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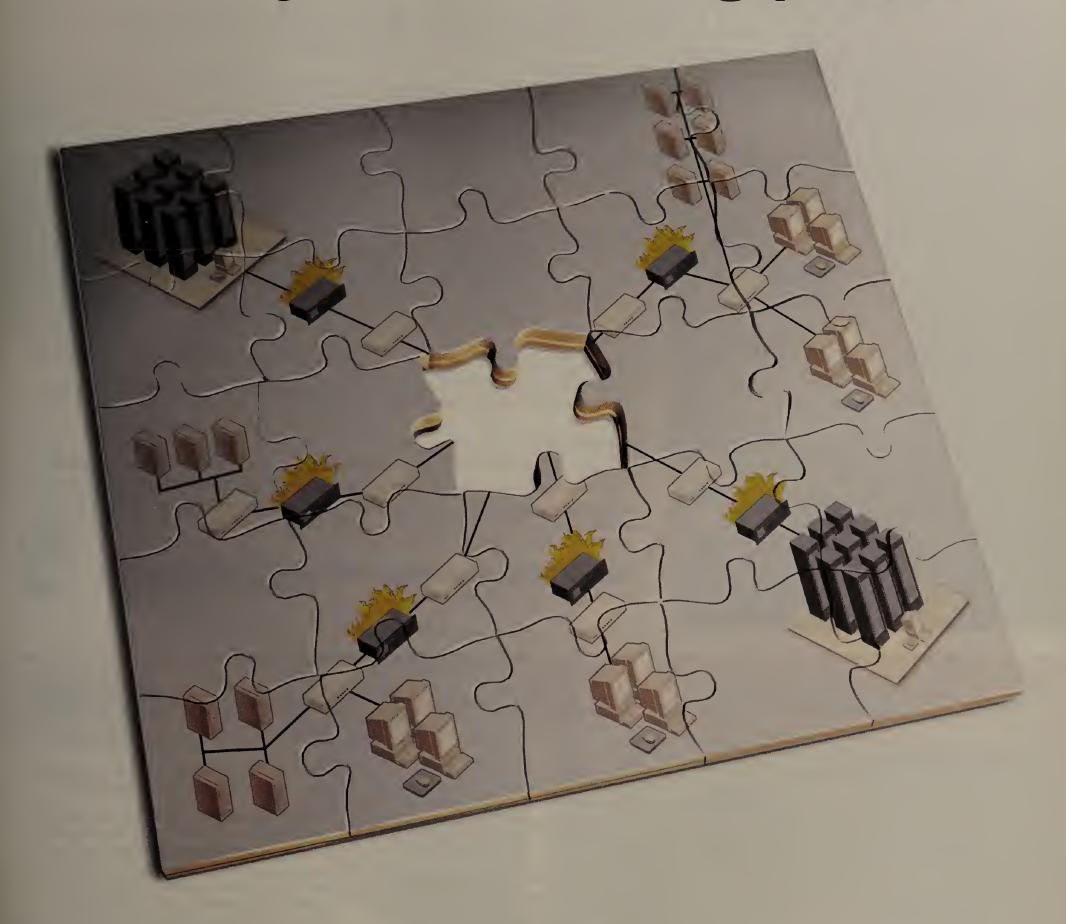
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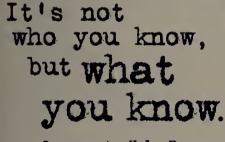
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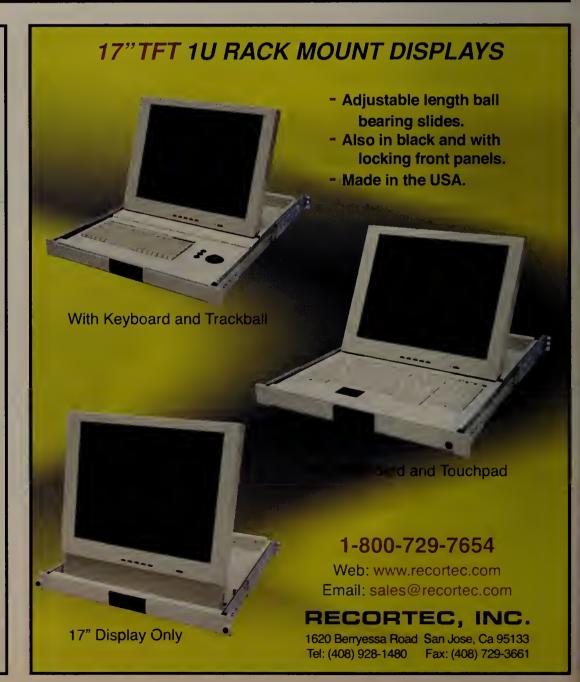
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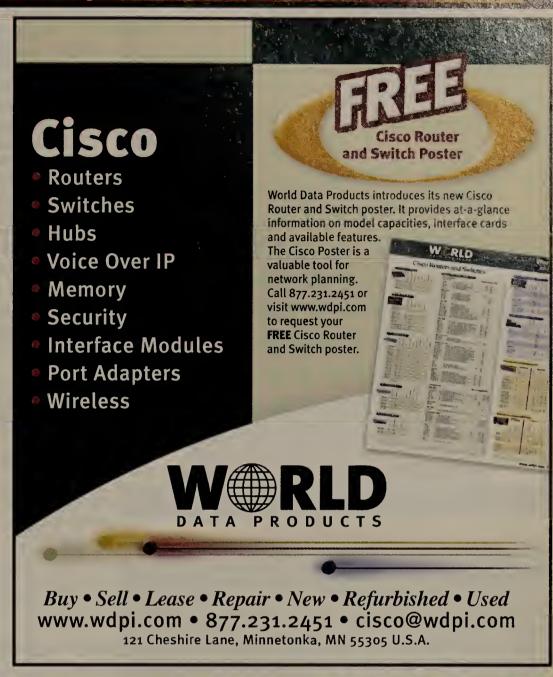


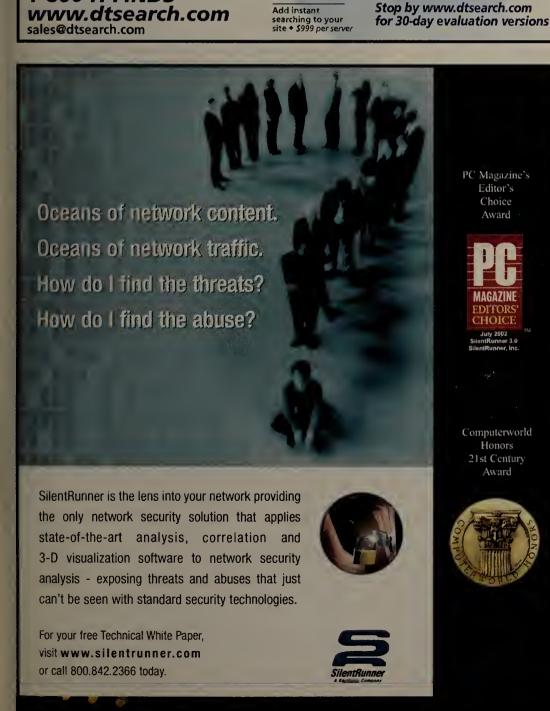




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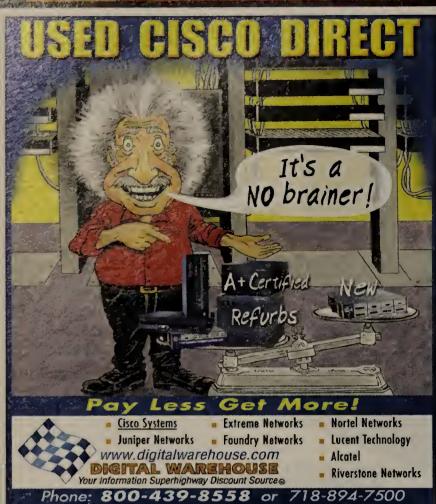
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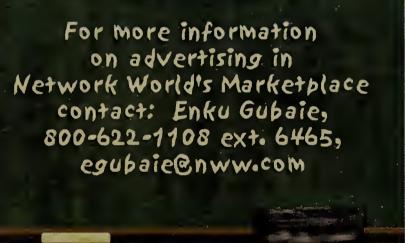
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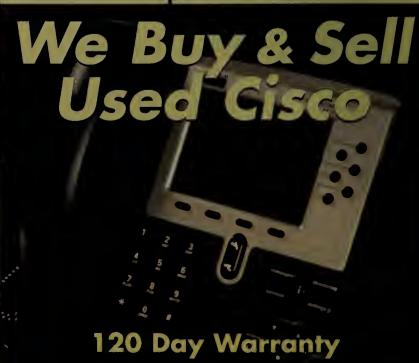
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Programmer/Analyst: Multiple openings in Tallahassee, FL to analyze & model applications using Rational Rose. Program TCP/IP w/ Sockets & Winsock. Administer ClearCase & ClearQuest. Create VOB's, Views, Streams, Rebasing Streams & Baselines of applications. Deploy Web applications on Linux, Unix & Windows. Create Enterprise applications w/ JAVA/OO concepts, JSP, Servlets, HTML, DB2 & UML. Req. Bachelor's or other engig field + 1 yr. exp. in job offered. Resume to: HR Manager, OmniSoft, Inc., 1265 Compass Pointe Crossing, Alpharetta, GA 30005

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Periodicals postage paid at Southborough, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #40063800. Network World (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World. Inc., 118 Turnpike Road, Southborough, MA 01772-9108.

**Network World** is distributed free of charge in the U.S. to qualified management or professionals.

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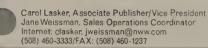
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<sup>\*</sup>Indicates Regional Demographic

#### BackSpin Mark Gibbs



## Losing? The war has been lost!

"You are receiving this e-mail as a valued customer of Pier I Imports... We want you to be the first to know about upcoming events and savings, and we think e-mail is the best way to do that. May we add you to our

e-mail list? If it's OK, you need do nothing — your name will be added automatically."

 Spam masquerading as Customer Service from Pier 1 Imports, received Aug. 27

As regular readers of this column know, I find spam extremely irritating. Using spam as a marketing tool is like using dynamite for fishing: It is ugly, always delivers overkill and damages the environment.

Unfortunately, spam is becoming an accepted way of doing business. Once only the province of people selling cell phone antennas, Viagra and penis enlargement, spam has become acceptable, sadly, to serious commercial entities.

After I got the above message, I called Pier 1 and spoke to Steve Woodward, senior manager of Internet operations.

Steve, a charming fellow, explained that Pier 1 hadn't just bought a list and spammed. Nope, what it did was take a list of Pier 1 customer accounts and had a bureau cross-reference it to e-mail addresses. Steve said the bureau claimed the list was an "opt-in

only" list.

Now it's true that my wife and I had an account with Pier I — about five years ago. And if the bureau wasn't lying outright about the list being opt-in, it was at least guilty of lousy data hygiene and sourcing.

The fine issues of misuse of data might be significant here. When my wife and I signed up for an account with Pier 1, we didn't give them permission to research the rest of our lives.

"But it's only your e-mail address they went looking for," some might say. Well, responsible companies have privacy policies that cover how they will use your data, and I have yet to see one that says, "We will use your data no matter how ancient to target you for any old marketing campaign."

Steve told me that, contrary to my expectation, a similar spamarketing campaign of 130,000 e-mailings generated something like two complaints.

So the bottom line is this: Ladies and gentlemen, I'd like to officially announce that the war on spam has been lost.

Forget how much you and your peers loathe spam; forget the financial burden on your organizations for bandwidth, storage and manpower to handle spam; forget the black hole lists and open relay lists. Forget it all.

If commercial giants find it acceptable, and consumers don't seem to mind, then spam is here to

stay and we'd better just get used to it.

How did this happen? How did real business adopt the tactics of the fly-by-night salesmen? I think the line between spam and nonspam got blurred when real marketers saw what the punks were doing.

A few of them, the risk-takers, developed more sophisticated pitches that looked like targeted messages and purchased opt-in lists, and then didn't get pilloried when they ran their campaigns.

The first few commercial renegades set the scene, and, seeing their success, the rest of the suits joined in. And how could they not? There was no consequence of any note, there was no shaming in the press, and nobody got fired.

So here we are. Pier 1, an otherwise responsible company, is spamming with the best of them. And no one cares.

The Pier 1 message went on: "If you'd prefer not to receive emails, just click the link at the bottom of this message by Aug. 30, 2002. We'll delete your name from our list immediately. Of course once your name is added, you may remove it at any time. But we're betting you won't want to."

They're betting I won't want to or perhaps that I'm just too damn weary to care. C'est la guerre.

Commiserations to backspin@gibbs.com.

# 'Net Buzz News, insights, opinions and oddities



#### **By John Fontana**

#### **Throwing curves**

While the real Buzz is off contemplating how last week's narrowly adverted baseball strike will inevitably come back to bite Joe Fan's pocketbook, Surrogate Buzz is taking this space for another test drive and wondering how the baseball quagmire is similar to the software licensing changes instituted 30 days ago by Microsoft.

In the baseball situation, fans knew that whatever happened they would pay. A strike, and baseball would have packed up and gone home, leaving fans in the lurch. An agreement, and fans eventually pay more to see the sport they have come to rely on for summer drama. But the product, watered down after years of expansion and skyrocketing salaries, is routinely nowhere near the quality that fans expect.

Any familiar chords here?

Microsoft's new licensing program, dubbed Licensing 6.0, snares users whether they choose to sign up or whether they shun it. Those that sign up can see software costs jump as much as 100%, according to some users and surveys. And those that shun the program will be hit with penalties when they do decide to upgrade

And users suffer the indignity of paying more for products that seem to have security leaks at every turn. Nearly a dozen serious flaws have been discovered over the past month in products such as Windows 2000, SQL Server, Office and Internet Explorer. Have you applied your patches today and mailed your licensing payment?

Just like baseball, no matter what happens, a percentage of Microsoft users will stay the course and take their lumps.

But the rules of licensing game are getting so screwy that serious decisions to move to alternatives have to be made.

With Licensing 6.0 and its maintenance sidekick, Software Assurance, companies sign two- or three-year agreements that provide access to software upgrades. But here's one interesting rub. If products aren't upgraded during that cycle, users have paid for software they never received.

Look at Windows.Net Server, delayed a year and set to ship nearly three years after Windows 2000. And next-generation Exchange Server was delayed at least two years in favor of an "interim" release that amounts to a fancy service pack. Get the picture?

It's a scenario that eventually might alter Microsoft's familiar marketing refrain: "We won't ship software until our customers tell us it is ready." What we might see is something like: "Here's what we have now and stay tuned for the service pack."

The alternatives are out there, but they require some tough decisions. Many users are testing StarOffice as an alternative to Microsoft Office. Not every user needs the full-blown Office suite, so it becomes a logical place to reduce license obligations.

Another is in the Linux realm where trusted network companies such as Sun, Hewlett-Packard and IBM are pressing hard with competent products to win converts from Windows.

And there is always the art of the negotiation. Insiders say Microsoft cut some sweet deals with those willing to stand up to Licensing 6.0. And company CEO Steve Ballmer said in July that Microsoft would work with customers to make sure they received fair deals.

That's a telegraphed pitch for any enterprise home run hitter. So corporate executives should do what Major League Baseball might not: Play ball!

The real Buzz is a lock to return next week and for many weeks to come. Fontana can be reached at jfontana@nww.com.

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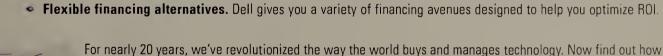
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